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A SUMMARY OF SMALL GROUP RESEARCH STUDIES

June, 1962

HSR-TN-62/3-Gn

By:

Joseph E. McGrath

Prepared for:

Air Force Office of Scientific Research
Office of Aerospace Research
Washington, D. C.

Contract No. AF 49(638)-256
Supplemental Agreement No. 5(62-341)

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CHAPTER I. INTRODUCTION

A. Background

This report is the eighth technical report of a research program designed to integrate existing knowledge in the small group field.¹ The main purpose of the program has been to develop and apply methods for systematic classification and integration of research information contained in small group research investigations. The development of the classification system, its application for review and synthesis of a sample of 250 small group studies, various by-products of that effort, and a report of our attempt to validate the usefulness of the classification system, have been presented in prior technical reports of the program.² The present report is a final summary, in which an attempt is made to formulate a series of broad, empirically-supported generalizations which have been induced from small group research information compiled during the program.

The classification system developed for use in this research program was based on operational, rather than substantive, characteristics of small group research information. That is, findings of small group studies were classified on the basis of a set of data collection and data analysis properties,

1. This research was conducted under Contract No. AF 49(638)-256 between the Behavioral Sciences Division, Air Force Office of Scientific Research and Human Sciences Research, Inc. Appreciation is expressed to Dr. Irwin Altman, co-investigator throughout most of the program, Mrs. Anita Terauds, Dr. Peter G. Nordlie, and other members of HSR's research staff. Dr. Altman is currently with Special Operations Research Office, American University, while the author is currently with the Psychology Department, University of Illinois. Appreciation is also expressed to Dr. Charles E. Hutchinson, Chief, Behavioral Sciences Division, AFOSR, whose stimulation, understanding and guidance throughout the program has substantially facilitated completion of the research.

2. A complete list of technical reports of this research program is presented at the end of this report.

rather than on the basis of substantive properties of the data.¹ In a previous report (McGrath, 1962), data bearing on the validity and usefulness of that classification system were presented and discussed. Several major conclusions were drawn from those analyses.

First, although it was not possible to apply normal tests of statistical significance, results indicated relatively strong over-all support for the predictive utility of the classification system. Secondly, results indicated that most of the discriminability of the total classification system derived from distinctions on two of the operational characteristics, namely: the level of reference of the data (member, group, environment), and the mode of the data (static characteristics vs. actions or behaviors). Classification on the basis of these two parameters divides the body of small group research information into six separate systems, notably: member states; member actions; group states; group actions; environmental states; and environmental actions. Results of the validation study indicate that there are relatively consistent patterns of interrelationship among variables within each of these six "systems of information," while relationships between variables of different systems (i. e., differing in level of reference and/or mode) are substantially less consistent.

Results of the validation study suggested that development of an additional end-product could make a major contribution to the small group research field. A previous technical report in the program (Altman & Terauds, 1960) had presented a detailed compilation of major variables used in the small group field and results of their use. That report, completed prior to completion of the validation study, utilized the entire set of distinctions contained in the classification system. Thus, it generated a very complex catalogue of information. Results of the

1. See Altman & McGrath (1959), or McGrath (1962) for a more detailed description of the classification system.

validation study, indicating that many of the distinctions of the classification system could be eliminated with relatively little loss of discrimination, thus permitted development of a much simplified catalogue of variables and their results. Furthermore, it became apparent that attempts to use the catalogue of variables as a reference book of small group research information led to some difficulty because it was organized and presented in terms of variables as classified by our operational distinctions, rather than in terms of more usual substantive labels.

Therefore, it was decided to develop a simplified classification system, using substantive rather than operational labels for variables, and to apply it to recompile the small group research information which had been collected in this research program. Results of that recompilation are presented in detailed form in Appendix A of this report. The second part of this chapter describes the revised, substantively based classification of variables. Chapter II presents a summary of general propositions, or major empirical generalizations, which have been induced from the detailed body of research information. The third and final chapter discusses some of the implications of these results for small group research and theory.

B. A Substantive Classification of Small Group Variables

Any classification of verbal materials must somehow compromise between elegance of the structure of the classification system and communicability of its results. Up to this point, the research program has concentrated on development of a strong, formal classification system. It has done so at some cost in terms of communicability to the community of interested researchers in the small group field. It has been noted that the materials produced earlier in the program, notably the catalogue of major small group variables (Altman & Terauds, 1960), have been difficult to utilize as reference materials because of the complexity and the somewhat esoteric language of the classification system. The present report is an attempt to counterbalance the prior emphasis on rigor of classification by presenting a recompilation of small group research information in a simplified classification which uses substantive, rather than operational, terms of reference. It must be recognized that this emphasis on communicability will, necessarily, entail some loss in formal rigor of the classification system, and hence some loss of information.

1. Procedures

The main procedures utilized in going from the prior, operational classification system to the revised, substantive classification system are outlined below. First, the four parameters of the classification system which had been shown to have relatively little utility--Source, Viewpoint, Task, and Relativeness--were eliminated, with all variables being aggregated into six major sets: Member States (member object, state mode); Member Actions (member object, action mode); Group States (group object, state mode); Group Actions (group object, action mode); Environmental States (surround object, state mode); and Environmental Processes (surround object, action mode).

Then, content subclassifications within each variable class, which had been utilized as part of the prior catalogue of variables, were taken into consideration. When possible, parallel content classes were combined to yield a minimum number of variable classes within each "system." Then, each of these classes were given substantive, rather than operational, labels, so as to best reflect the kinds of content included in the variables within each class. Finally, the set of variable classes was considered as a whole, without reference to the six "systems of information," minor revisions were made, and the set of variable classes were placed in a new order to reflect a logical classification in terms of substantive labels. The resulting classification system consisted of 31 variable classes, arranged in seven sets which seemed to provide a logically ordered chain.

It should be emphasized that this classification system, like any substantive classification, has relatively little classification rigor. It is believed that the 31 variable classes are mutually exclusive, but they certainly are neither collectively exhaustive nor closely interrelated with one another. Thus, the main burden of justification for the revised classification must be in terms of its usefulness as a set of categories for describing a given aggregate of small group research information.

2. The Classification Categories

The classification system which resulted from the translation procedures described above, consists of 31 variable classes, which in turn can be grouped into seven sets. The seven general categories and the 31 specific variable classes are listed below. Definitions of each of the variable classes, along with references to studies in which each occurs, and a compilation of research information relevant to each of them, are presented in Appendix A. Chapter 3 presents a summary of general propositions which have been induced from that compilation of small group research information.

List of Substantive Variable Classes

	<u>Substantive Classes</u>	<u>Operational Classes*</u>
00	Personal Characteristics	
01	Personality measures.....	Member state
02	Biographical characteristics.....	Member state
10	Abilities	
11	Member general abilities.....	Member state
12	Member task abilities.....	Member state
13	Group abilities.....	Group state
20	Attitudes	
21	Attraction to other members and the group.....	Member and group state
22	Attitudes toward the task.....	Surround state
23	Attitudes toward the situation.....	Surround state
24	Attitudes toward supra-ordinate groups, other outside persons, groups.....	Surround state
25	Attitudes toward issues, concepts, ideologies.....	Surround state
30	Member role	
31	Social position in the group.....	Member state
32	Task or physical position in the group.....	Member state
40	Group and Task Conditions	
41	Group structure and composition.....	Group state
42	Training and experience.....	Member and group state
43	Induced social conditions.....	Group state
44	Influence and conformity pressures.....	Group state
45	Task/stimulus characteristics.....	Surround state
46	Induced task conditions.....	Group state
47	Feedback and reinforcement.....	Member and group state
50	Interaction Process	
51	Content of interaction.....	Member and group action
52	Pattern of interaction.....	Member and group action

	<u>Substantive Classes</u>	<u>Operational Classes*</u>
60	Effects on Members and the Group	
61	Reactions to the situation.....	Member and group action
62	Perceptions of task behavior and effectiveness.....	Member state
63	Perceptions of social behavior and effectiveness.....	Member state
70	Task Performance	
71	Leadership performance.....	Member action
72	Member task performance in experimental settings.....	Member action
73	Member task performance in operational settings: global measures.....	Member action
74	Member task performance in operational settings: specific measures.....	Member action
75	Group task performance in experimental settings.....	Group action
76	Group task performance in operational settings: global measures.....	Group action
77	Group task performance in operational settings: specific measures.....	Group action

* These operational classes indicate which of the six operationally defined systems of information a given substantive class belongs within. (See page 2.)

CHAPTER II. A SUMMARY OF MAJOR EMPIRICAL RELATIONSHIPS

The limitations of the sample of research information contained in this compilation, and the weakness of the substantive classification system on which the compilation is based, have already been discussed. With these limitations in mind, it is possible to induce some broad, empirically-supported propositions from this body of data. Some of them, stated in a relatively general form, seem almost trivial. Yet, at the same time, they are fundamental. In any event, they represent major facts of the small group field and constitute a substantial portion of the body of empirical knowledge which can guide future research and which must be taken into account in construction of general substantive theory. The remainder of this chapter is an attempt to formulate and discuss a series of such general propositions.¹ A detailed compilation of information, upon which these general propositions are based, is presented in Appendix A.

A. Characteristics of Group Members

1. Abilities and Experience (Variable Classes 11, 12, 13, 42)

One major generalization from the data compiled in this study is that groups whose members have high abilities, training and/or experience are more effective than groups whose members are lower in abilities or experience. In one sense, this proposition is indeed trivial. It is to be expected that the quality and quantity of group outputs should be a positive function of the quality of inputs to the group. At the same time, this general proposition may have considerable theoretical importance. It certainly bears upon the ancient argument as to whether group phenomena are to be viewed as a summation of individual phenomenon. The implication of the proposition

¹The order of presentation in this chapter does not follow the sequence of variable classes as shown in Appendix A. However, the same terms are used to identify variable classes; hence cross-referencing should not offer a serious problem.

stated here is that group performance is indeed some positive function of the combination of member skills and training. It does not follow, of course, that that function must necessarily be additive or linear, and it certainly does not follow that only the combination of member abilities and experience plays a part in determining group effectiveness. It certainly does follow, however, that group effectiveness cannot be conceptualized as independent of the level of task capabilities which characterize its members in the aggregate.

2. Status in the Group (Variable Classes 31, 32)

Another general proposition which can be induced from the accumulated data is that group members who have high social or task status in the group are likely to have high power and to react favorably to the group. Specifically, in comparison to low status members, those with high status are likely: to be seen as having high task skills; to have authoritarian attitudes; to more frequently exhibit diagnosing behavior, action initiation, information giving, and attempts to lead; to perceive themselves as having high influence and high authority, and as delegating responsibility; to exhibit leadership behavior in leaderless situations; to have higher task satisfaction and involvement in the task; and to perceive the group as doing well on its task.

This general proposition may also seem obvious when viewed superficially. However, it is not necessarily true that those with high status have high power. The fact that this relationship appears to be consistent and general bears on the fundamental nature of interpersonal relations in small groups. Furthermore, the fact that high status persons are more involved in the group's task and perceive group success is by no means a necessary empirical outcome. Its consistency implies that status is not only related to power, but also to the individual's commitment to the group and his motivation toward group achievement.

3. Attitudes Toward the Task and the Situation (Variable Classes 22, 23)

Favorable attitudes toward the group's task and toward the situation seem to be partly a consequence of high social or task status in the group, job autonomy, cooperative group conditions, and induced perceptions of task success. They are also associated with frequent attempts to influence others. These relationships suggest the operation of a general "halo" or "favorable response set" effect, with measures of attitudes toward the task and toward the situation representing reflections of an over-all personal success in the situation. There is no indication that such attitudes affect the individual's actual performance in the task situation, or his interpersonal relations.

4. Authoritarian Attitudes and Behavior (Variable Classes 25, 43)

One of the variables which has been most frequently studied in small group research is authoritarian attitudes. A distinction should be made here between authoritarian attitudes of one or more members of the group, as measured by the F-scale or similar instrument, and authoritarian role-behavior by a leader who is deliberately implementing an experimental condition. For authoritarian attitudes, there has been a decided lack of consistent relationships, which is even further enhanced because of the relatively high use of this variable. However, a few apparently consistent findings have accrued. Specifically, high authoritarian attitudes seem to be associated with low popularity and low choice as a leader; with striving for membership in high status groups; with a variety of types of interaction-behaviors, but not with many other similar interaction characteristics; and with poor performance on a maze task, but not with performance on other experimental or operational tasks. This picture is, at best, sporadic.

The effects of authoritarian role behaviors by the leader have been investigated less frequently. Results show a consistent association between authoritarian leadership and more effective group performance in experimental tasks requiring symbolic problem solving, although this association does not hold for group performance on simulated military tasks and is reversed for member performance on a maze task. Thus, the data do not indicate that authoritarian attitudes and behavior are a major source of variation in small group behavior.

B. Interpersonal Relations

Much research effort in the small group field has been devoted to study of interpersonal relations. The body of data compiled in this program contains considerable information for measures of member attraction to other members and the group (variable class 21); for perceptions of performance effectiveness of self, other members and the group (variable classes 62 and 63); for effects of induced perceptions of congeniality among members (variable class 43); and for effects of induced perceptions of group task success (variable class 46). The discussion in this section will center around these four sets of variables.

1. Interpersonal Attraction (Variable Class 21)

- a. Origin of Interpersonal Attraction: Interpersonal attraction in a group appears to be a consequence of a number of variables. Specifically, members who have low authoritarian attitudes and high group rank or status are likely to be personally attractive to group-mates. Heterogeneity of general background characteristics, but homogeneity of characteristics relevant to the group and its task, seem to provide conditions for mutual attraction among members. Conditions of intra-group cooperation (as opposed to intra-group competition), and induced perception of congeniality, also seem to lead to mutual attraction among group members.

b. Interpersonal Attraction Over Time: The relationship between interpersonal attraction and length of experience with other group members shows contrasting results for laboratory and real life groups. In the laboratory setting, mutual attraction among members increases with length of experience, while in a military task group mutual attraction decreases with length of experience. This contradiction could be based on either of at least two major differences. The absolute length of experience in the group is likely to be greatly different, and non-overlapping, for the two settings. "High" experience in a laboratory group may be as short as, or shorter than, "low" group experience in the real-life military group. If this difference accounts for results, it suggests a nonmonotonic relationship between length of time together and mutual attraction, such that mutual attraction increases initially and later decreases as the group's life is extended in time. This proposition could readily be tested by experimental means. An alternate basis for accounting for these discrepant results is the obvious difference between a laboratory group and a military task group in membership, task, and general situation. Many conjectures could be made as to why mutual attraction should increase for the one group but decrease for the other. Such hypotheses could be tested, using comparable time spans in the two groups. Both of these possibilities merit research attention.

2. Attraction and Task Success

There appears to be a consistent relationship between the level of interpersonal cohesiveness in the group and a number of indices related to group members' perceived and actual task performance effectiveness. Specifically, personal attraction among group members is consistently associated with perceptions of other members as having high task skills, greater communication among members and perception of group task success, and with objectively measured task success in some but not all operational settings. Whether these factors (perceptions of task skills, perceptions of group success, actual group success and high communication) should be viewed as preconditions giving rise to good interpersonal relations, as

direct consequences of good interpersonal relations, or as parts of an interdependent system of variables (which includes good interpersonal relations), is partly a matter of theoretical preference. Some light can be shed on this question by consideration of results of studies using induced perceptions of cohesiveness and congeniality, and induced perceptions of task success, which are discussed next.

- a. Effects of Induced Cohesiveness (Variable Class 43): Experimentally induced conditions of group cohesiveness or congeniality lead fairly consistently to several types of consequences. First, such induced perceptions of congeniality lead to higher mutual attraction, indicating that the experimental inductions are consistently effective. They also lead to greater communication, to greater efficiency and adaptability as rated by superiors or observers, and to perceptions that fellow group members performed effectively on the task.
- b. Perceived Task Success (Variable Classes 46, 627): Both experimentally induced perceptions of task success or failure, and direct measures of perceptions of task performance effectiveness, have been utilized fairly widely in small group research. Perceptions of task effectiveness are more likely to occur for individuals with high status in the group, and with relative job-decision autonomy, under conditions of induced cohesiveness or congeniality, cooperative group conditions, and induced conditions of task success. They are also associated with effective performance. Experimentally induced conditions of task success, besides consistently leading to perceptions of task effectiveness (hence, verifying the success of the manipulation), also lead to greater interpersonal attraction, perceptions of greater task difficulty, and perception of the group as a vehicle to goal attainment.
- c. Summary: The over-all picture suggests that interpersonal attractions, interpersonal communication, and perceptions of task success may vary interdependently, such that a manipulation of any one of them will lead to correlated changes in the other two. Successful induction of greater interpersonal attraction produces greater communication and increased perceptions of group task success. Similarly, successful manipulation of

perceptions of group success produces greater interpersonal attraction and communication. Finally, it is likely that increasing the amount of communication among group members would lead to more favorable perceptions of other members and of the group's performance effectiveness, although the latter point is not established in the present body of research information. In these terms, we can suggest that attraction, perceived task success and communication constitute an interdependent system of variables. We can further suggest that certain other variables, e.g., cooperative conditions, job autonomy, high member status, are associated with or are determinants of this system.

It is also interesting to note that variables in this complex are related to actual member or group performance for some tasks but not for others. Thus, while this complex of variables may be important for understanding internal relationships within the group, it may be relatively unimportant in determining the effectiveness of members and groups in accomplishment of their tasks.

C. Structural Characteristics of the Group

In the over-all compilation of small group research information, relationships dealing with structural characteristics of the group appeared to be highly consistent. When group structural characteristics are subdivided into content classes, sufficient information remains to provide general propositions for three major classes of group-structure variables, namely: variations in number of members of the group (group size); variations in homogeneity/heterogeneity of the group with respect to various indices; and comparisons of internally cooperative vs. internally competitive groups. These three variable classes are discussed in this section.

1. Group Size

Variation in group size, including the difference between working alone and working with others, has been used fairly frequently in group research. Unfortunately, variations in size have ranged widely but not necessarily systematically. The review sample included studies using groups up to 50 members. Results of different studies pertain to different ranges of group size. Nevertheless, a few apparently consistent relationships have been accrued. Relatively small group size is likely to be accompanied by:

- a. Less perceived need for guidance and for a definite leader but less perceived competence and ability of the group as a whole.
- b. Fewer expressed ideas and less change in attitudes or other responses by members.
- c. Less frequent perceptions of the leader as exhibiting coordinating behavior, clarifying rules, or wisely delegating authority.
- d. Greater perception of group task success.
- e. Better performance on maze tasks but poorer performance on symbolic tasks (for individuals working alone vs. in a two or three man group).
- f. Better performance in operational settings.

It is difficult to generate meaningful over-all propositions to account for these findings since some have to do with comparisons of groups ranging in size from 10 to 50 members, while others have to do with comparisons of one member working alone vs. two or three members working in concert. A comprehensive and systematic exploration of the effects of a broad range of differences in group size, for a range of member and group variables, is clearly needed and seems worthy of appropriate research attention.

2. Homogeneity

Measures of homogeneity of group members on any of a number of characteristics represents a potentially broad class of variables for use in small group studies. Its actual use, however, has been markedly restricted. Furthermore, with one exception, results have not tended to show consistent relationships with other variables. The one exception is for homogeneity of members of dyads in the use of projection, as opposed to the use of other defense mechanisms. Homogeneity of dyads in the use of projection was associated with less achievement motivation, greater insecurity, greater negative feelings toward the partner and the group, more attempts to influence the partner, and lower perceptions of the partner's and the group's task success. However, all of these findings come from a single study; hence, they are based on a single sample of subjects. Indices of homogeneity in other regards (including homogeneity in use of defenses other than projection) have either been used infrequently or have yielded nonsignificant or inconsistent results within the studies of our sample. Historically, one of the main arguments for the study of groups has been that groups are not mere summations of individuals but constitute a different system level, whose properties arise from the pattern of members and conditions. In the light of this argument, and of the inadequate exploration of effects of patterns of member characteristics, the need for more extensive research in this direction is compelling.

3. Cooperation

Experimentally induced conditions of cooperation (as opposed to intermember competition) have been consistently associated with a number of variables:

- a. Perceptions of group cooperation and of assistance from others, indicating that the experimental manipulation produced the intended effects.
- b. More favorable attitudes toward the task, the situation, and the group.
- c. Less criticism, aggression, defensiveness and blocking behavior on maze tasks, but this relationship does not hold for puzzle tasks.
- d. Greater coordination and orderliness and fewer communication difficulties.
- e. Better group performance, but not better member performance, in experimental settings.

Thus, it is clear that groups which have internal discord (via experimental conditions) do indeed have less smooth working conditions and less favorable reactions to each other and to the situation, and may have less effective performance as a group, compared to groups operating under conditions which made for cooperative action. Of much more consequence, perhaps, will be the systematic exploration of the "natural" conditions which give rise to cooperative effects such as those achieved by experimental manipulations.

D. Group Interaction

Much of the material on the group interaction process within this compilation of research information can be organized around two central concepts: (a) variations in amount of communication, participation or interaction, including variations in origins and targets of communication (variable class 52); and (b) variables describing rather global consequences of group interaction activity, which have been subsumed here under the term "reactions to the situation" (variable class 61).

1. Amount of Communication or Interaction

Members who have high status in the group, who are central in the group's communication net, and who are operating under conditions of perceived compatibility and induced motivation, tend to be high communicators. High participators tend to gain and retain more knowledge about the topic of a group discussion, and tend to receive more communication from others, especially orientation comments, questions, and negative comments. Communication tends to be directed toward other members who are personally liked or disliked, rather than toward those to whom the communicator is personally indifferent. While the amount of participation in a group interaction situation tends to be associated with other variables having to do with interpersonal relations (e.g., attraction, group status), it does not show strong and consistent relationships with member or group task performance effectiveness.

2. Reactions to the Situation

The data on this review contain a relatively large number of variables which were collectively characterized as member and group reactions to the group, task and/or situation. For the most part, these consist of characteristics of the group (such as formation of cliques, orderliness, absenteeism) obtained from observations by the experimenter or superiors. While no entirely adequate representation of these variables can be made with a single designation, most can be viewed as measures of more or less favorable reactions to the group's activities.

Group members who exhibited relatively favorable reactions to the situation tend to be characterized by:

- a. Peer ratings of high power, and high assigned importance in the group;
- b. Superior ratings of high ability;
- c. Effective performance in operational settings.

Such favorable reactions to the situation are most likely to occur under the following circumstances:

- a. Group members are homogeneous in attitudes toward authority;
- b. The group is organized, rather than unorganized, if in a frustrating situation;
- c. The group is operating under cooperative conditions and low threat conditions.

These results do not appear to lend themselves to the formulation of any broad, general propositions, perhaps because of the rather heterogeneous variables which have been grouped together in this single variable class.

E. Task Performance

The task performance effectiveness of leaders, members and groups has been of central concern in small group research. Our basic classification system provided a number of sub-classifications in this area; but for the most part, there was not sufficient data to retain many of these sub-classes. The 31-variable-classification presented in Appendix A contains one variable class dealing with leadership performance (variable class 71), three variable classes dealing with member performance (variable classes 72, 73, 74), and three variable classes dealing with group performance (variable classes 75, 76, 77). Information from those seven variable classes is here summarized under three headings: leadership

performance; task performance effectiveness of group members; and group task performance effectiveness.

1. Leadership Performance

A distinction is made here between measures of the effectiveness of performance of a leader as a leader, and measures of the effectiveness of performance of the group which he leads. The former is discussed here, while the latter is discussed under group task performance effectiveness.

Most of the research information about leadership performance comes from studies of leaderless group situations, although some also comes from superiors' ratings of leadership performance in operational settings. Effective leadership behavior seems to be a function of a number of characteristics and conditions:

- a. Individual personality characteristics such as extroversion, assertiveness and social maturity, but not a number of other similar characteristics.
- b. Education, but not age or other biographical characteristics.
- c. Intelligence, general abilities and task abilities.
- d. High group status.
- e. Training in leader techniques.

In turn, groups with effective leaders tended to be characterized by good work relations with other groups, care of equipment, orderliness, and a range of indices of morale. Effective leaders tended to be characterized by a high frequency of problem proposing, information seeking, and ego-involvement, in addition to the actions used to define their leadership

effectiveness. However, they were not distinguishable from nonleaders or ineffective leaders on a number of other indices of group interaction.

Thus, there seems to be a fairly clear picture of who will emerge as leader or be an effective leader--in essence, the one having highest status, skills and training. There is a far less clear picture of just what behaviors characterize an effective leader or distinguish leaders from nonleaders. Notably, also, there were no data on the task effectiveness of groups which had such leaders, nor on what kind of effect, if any, the presence of a good leader had on member and group task performance.

2. Task Performance Effectiveness of Members

Individual performance effectiveness apparently results from a number of antecedent conditions such as: high general abilities (e.g., intelligence, school grades) and task abilities; training and experience; feedback about own performance; decision autonomy; group rather than individual reward; a relatively small work group; low authoritarian attitudes (but only for maze tasks); exposure to a group discussion; and the requirement to reach a decision or conclusion.

Effective member performance is also associated with perception of own task success. No such relationship held for induced perceptions of task success. Hence, it seems more likely that the perception of task success reflects an accurate appraisal of reality than that it constitutes an antecedent condition for the occurrence of objectively-measured task success.

In the special case of member performance in conformity situations, good performance (i.e., correct stimulus judgments) was enhanced by stimulus clarity, non-unanimity of members, and personal anonymity.

One is tempted to formulate the general proposition that member performance in a group setting is primarily a direct reflection of member skills, abilities and training, with group conditions affecting performance only when they interfere with the direct display of member capability (e.g., by lack of job-decision autonomy, by lack of feedback, by lack of exposure to information). This very general proposition does not fit all of the available data, of course, but seems to represent an adequate summary of a very substantial portion of it. It might be noted, also, that the apparent lack of relationship between member performance effectiveness and a number of variables having to do with interpersonal relationships (e.g., attraction, communication) seems to lend further support to the general proposition that member task performance hinges largely on member abilities and training, provided group and task conditions do not hinder the direct display of member capabilities. Such a general proposition has broad implications for both basic and applied study of small groups and their effects on the individual.

3. Group Task Performance Effectiveness

Investigation of factors related to group task performance effectiveness is, perhaps, the heart of the small group research field. Measures of group performance have been related to a wide range of measures of member, group and task characteristics and have shown, in general, a rather consistent set of findings. However, a substantially higher rate of significant findings has been obtained in experimental settings (51%) than in operational settings (26%). Some of the factors which appear to be consistently associated with effective group task performance are:

- a. General and task abilities of members, and training or experience on the task.
- b. Working alone for motor tasks, working with others on symbolic tasks, and working in relatively small (10 compared to 50 member) groups in operational settings.
- c. Systematic distribution of task information, and rapid, direct access to it.
- d. Cooperative conditions, group rather than individual reward for success, and confirmation of expectations about the nature of the task.
- e. Individual praise and criticism, and use of structured critique methods.
- f. Working in a circle-type communication net, when dealing with a complex problem (as opposed to other types of restricted communication nets, not in contrast to open communication nets).
- g. Authoritarian role-behaviors by the leader (for motor tasks, but this does not hold for performance in operational settings).
- h. Self-ratings of physical prowess and self-reliance, and absence of extreme personality traits.
- i. Clarity of stimulus and non-unanimity of group members for the special case of performance on conformity tasks.

Effectively performing groups are also characterized by: little hostility and disagreement within the group; perceptions of successful outcomes and harmony in describing hypothetical groups; perceptions of own (but not necessarily other's) task success; and interpersonal attraction for some but not all types of operational tasks. However, the nature of these variables makes it necessary to consider them as consequences or concomitants of task success rather than as antecedents of task success.

The rather extensive list of antecedents of effective group performance given above can most readily be summarized in a general proposition parallel to that formulated in regard to member task performance. The effectiveness of group task performance appears to be primarily a function of the abilities, training and self-confidence of group members, as modified by facilitating or restraining conditions (e.g., cooperative instructions, feedback and reinforcement, access to information, and role-behaviors of the leader). As with member task performance, there is a surprising lack of information on the effects of interpersonal relations on group task effectiveness, and where such information does occur, results tend to give an inconclusive picture. Much of small group theory and research has been concerned with the conditions under which good interpersonal relations occur in a group. This has often been presented in a form which implies that to generate good interpersonal relations is to enhance performance effectiveness of the group and its members. Yet there has apparently been relatively little empirical testing of that latter proposition, and the research information which is available does not provide clear-cut support for it. To the extent that any clear formulation can be made, the available data seem to suggest that good interpersonal relations are likely to be a concomitant of, or a consequence of, effective group performance, rather than a precondition for such group effectiveness. Perhaps even this relationship only holds when perceived task success accurately reflects objective task performance. The latter possibility seems worthy of experimental test.

F. Miscellaneous General Propositions

In addition to the related sets of induced propositions given above, a number of other isolated, but relatively general, propositions can be formulated. They are stated below in a general form without qualifications.

1. Degree of conformity is a function of amount and continuousness of conformity pressures. Those pressures are especially effective for members who see themselves as rejected.
2. Job-decision autonomy is associated with favorable attitudes toward supervisors and greater satisfaction with the job.
3. Exposure to task-relevant materials, in the form of films or discussion, is effective in producing attitude changes and in increasing problem-solving effectiveness.
4. Reduction of ambiguity increases problem-solving effectiveness and reduces the transmission of rumors.
5. Feedback of performance data increases member task effectiveness in experimental settings; use of praise and criticism, and use of structured critique methods, increase effectiveness in operational settings.
6. Appointed leaders, those with low authoritarian attitudes, and those who perceive themselves to have high power, are most likely to attempt to influence other group members.
7. Level of education is associated with leadership in leaderless group situations.
8. Self-ratings of physical prowess and self-reliance, and absence of extreme personality characteristics, are associated with effective group performance in operational settings.

CHAPTER III. IMPLICATIONS AND CONCLUDING COMMENTS

This research program has produced a series of compilations of small group research information. These compilations have been progressively less detailed and more general integrations of the material. Within this report, a relatively simplified but complete compilation is presented as Appendix A. A much more general digest of that information is presented in Chapter II in the form of a series of general propositions or empirical generalizations. This final chapter will not attempt an even more global summary statement of established small group research knowledge. Rather, it will present brief discussions of certain key problems and themes which seem to have fairly fundamental implications for the future of the small group research field. Collectively, these discussions provide a general commentary on the state-of-the-art in research on small groups.

1. Experimental vs. Operational Settings

The majority of studies of small groups have been conducted in laboratory settings. In regard to both member and group task performance, results of research in experimental settings are surer (i. e., more likely to be statistically significant), but variables which relate to performance in experimental settings often do not relate consistently to similar performances in operational settings. Thus the higher consistency of findings from laboratory experimentation, presumably obtained via increased precision of measurement and control of conditions, apparently has been bought at the price of a substantial reduction in "validity" (that is, correspondence with real-world phenomena). The trade-off involved in choice of a research setting, between realism and validity on the one hand and control and precision on the other, is an inherent dilemma in small

group research as it is in all research on human behavior. The dilemma is not to be resolved by full commitment of resources to either extreme. Perhaps the data here compiled represents a substantial argument for reconsideration of how the research resources of the small group area can best be allocated among different methodologies and settings.

2. The Need for Systematic Research

One of the strongest impressions gained from this rather extensive review of small group literature is that small group research shows a strong tendency for virtuosity or individuality in the choice of problems and selection of variables. Only a few instances of replication of studies were discovered. Even these could better be characterized as quasi-replications, since they tend to include a shift in population and/or a modification of the group's task. Apparently, the situational pressures which influence scientists in this area strongly favor the breaking of new ground in contrast to the confirmation of prior results via replication.

Choice of variables for study seems to be even more investigator-determined than choice of problems. On the one hand, there are a number of special variables which have been used almost uniquely by a single investigator or his disciples. On the other hand, there has been relatively little research which could properly be called systematic, in the sense that it was explicitly designed to explore a wide range of variables drawn from different aspects of the small group field (i. e., member, group and task variables, states and actions, etc.).¹ Nor has much effort been devoted to development and application of a standard battery of measures which sampled the broad aspects of group research

1. An exception to this statement must be made in the case of several small group researchers who have attempted to pursue such systematic research by means of factor analysis. Notable efforts along this line include recent works of R. B. Cattell, E. F. Borgatta, and R. F. Bales. Factor analysis studies were not included in the present review.

and which could provide a direct basis for comparing results from one study to another. Such a procedure seems to represent a first step in the development of something equivalent to standard conditions as utilized in the physical and biological sciences. In the absence of such systematic programming of research, the rate of progress in understanding small group phenomena is likely to remain relatively slow, even though the rate of production of small group research seems to be increasing without abatement.

3. The Need for More and Better Theory

The present research was deliberately conducted from an atheoretical viewpoint. Our extensive review of small group literature leaves the firm impression that a large portion of the research in that field has likewise been done without benefit of much in the way of guiding theory. The term "theory" is here used to refer to an explicit, a priori formulation of basic premises, derived postulates and empirically testable hypotheses. The small group field shows a decided lack of such theoretical formulations. The term theory is not here extended to include those ramifications of verbal arguments which are so often used to rationalize the form in which the research was conducted and/or to explain the meaning of those relationships which did in fact meet set criteria of statistical significance. The small group field apparently has a surfeit of the latter material.

The author holds no brief for fanciful and elaborate formulations of theoretical systems which are never tested against empirical criteria. But there seems to be no danger of the small group field becoming an "all theory, no data" discipline. Rather, the danger lies in the other direction. We are overwhelmed with data--largely unrelated--and have only a few meager beginnings in the formulation of even limited formal

theory. Thus, one could describe the small group field by drawing an analogy to a very busy blind man who is attempting to shoot bull's-eyes on a large and complex target surface. Historically, the response to a relatively low rate of hits seems to have been a sharp increase in the volume of fire. Not only is there a need for more "aim," less "volume of fire"; but, like the blind man, we are generally unable to tell which shots really hit and which were misses. To continue the analogy, the advantages of the "sight" gained by even a limited and crude formal theory seem to far outweigh the potential disadvantage of "tunnel vision" which is a risk involved in research that closely follows a rigorously defined set of theoretical propositions. Further progress in the field may require that small group researchers spend less time in the laboratory, more time in the library, and above all more time in the process of formulation and explication of theory.

APPENDIX A: COMPILATION OF RESEARCH INFORMATION
FROM 250 SMALL GROUP RESEARCH STUDIES

APPENDIX A: COMPILATION OF RESEARCH INFORMATION FROM 250 SMALL GROUP RESEARCH STUDIES

Introductory Comments

This appendix presents a detailed compilation of the research information which has been abstracted from a sample of 250 small group studies. It is organized in terms of 31 variable classes, as listed in Chapter I. Material for each of the variable classes is presented in three parts:

1. The variable class is defined by describing the kinds of variables which are included in it.
2. Certain summary information about the variable class is presented (e. g., number of studies used in, total number of relationships, over-all proportion of significant relationships), followed by a list of reference numbers indicating which studies included variables of this class. (The reference numbers refer to the bibliography of the 250 small group studies which were reviewed in the program. That bibliography is presented as Appendix B.)
3. A detailed statement of the relationships between the given variable class and each other class of variables, including statements of relationships between specific variables where possible.

This form of presentation contains a certain amount of redundancy, since the relationship between each pair of variable classes is presented twice. Thus, the reader can obtain full information about any one variable class without cross-referencing. While this appendix presents the full compilation of research information, a summary or digest of this information is provided in Chapter II of the report in the form of a set of general propositions or empirical generalizations which seem to be consistently supported by the data here reviewed.

01. Personality Measures

Definition

This variable class contains scores from a number of standard personality measures, e.g., MMPI, Bernreuter Personality Inventory, Taylor Anxiety Scale, Guilford-Zimmerman Temperament Survey, etc. It also includes self and peer ratings of such traits as self reliance, insecurity, and measures from projective tests such as Rorschach and Blacky Pictures Test.

References

Variables of this class were used in a total of 16 studies in the sample, were related to 13 other variable classes, in a total of 207 relationships, of which 57 (28%) were significant. Reference numbers of studies are: 96, 128, 758, 1428, 1451, 1468, 1557, 1603, 1607, 1650, 1751, 1963, 1968, 1979, 2046, 2104.

Relationships with Other Variable Classes

21. Attraction to members and the group. Not related (0/4)

Such measures as Rorschach anxiety, adjustment scores, were not related to measures of personal attraction to other members.

22. Attitudes toward the task. Not related (1/7)

Characteristics such as personal submissiveness were not related to ratings of task desirability.

31. Social position in the group. Slightly related (12/50)

Leaders of task groups (e.g., fire team captains) exhibited different personality characteristics than did group members; however, this did not hold for non-task groups.

41. Group structure and composition. Moderately related (1/2)

Dyads who used projection as a common defense showed less achievement motivation than dyads dissimilar in defenses or using other defenses in common.

42. Training and experience. Highly related (2/2)

Groups trained in discussion procedures showed less change in defensiveness than untrained groups.

43. Induced social conditions. Not related (0/5)

Such measures as perceived threat were not related to anxiety, relaxation.

51. Content of interaction. Slightly related (2/10)

Personality adjustment was not related to irrelevant communications, job questions, etc.

61. Reactions to the situation. Slightly related (6/36)

For example, observed group competitiveness and adaptability tended not to be related to personality measures such as emotional stability and maturity.

71. Leadership performance. Moderately related (12/24)

There was a consistent relationship between scores on personality measures of extroversion, assertiveness, social maturity, and leaderless group discussion behavior (10/14). However, there was little consistency in the relationship between self-ratings and leaderless group discussion behavior (2/10).

72. Member task performance in experimental settings. Slightly related (2/14)

No clear-cut pattern of results.

73. Member task performance in operational settings: global measures. Moderately related (4/8)

Better over-all personal ratings resulted in higher ratings of leadership in industrial work situations (3/3) but were not related to leadership performance in military field situations (1/5).

76. Group task performance in operational settings: global measures. Slightly related (12/38)

The less members exhibited extreme personality characteristics, the more effective was their group's performance (7/12). Members who rated themselves high on physical prowess and self reliance belonged to groups rated high on over-all military field problem effectiveness (5/8).

77. Group task performance in operational settings: specific measures. Somewhat related (3/7)

Supervisors rated high in interviews on traits such as reasonableness and democratic behavior had high producing work sections (3/3), but no such results held for ratings of other similar characteristics (0/4).

02. Biographical Characteristics

Definition

This variable class includes such variables as sex, age, education, marital status, race, religious affiliation, geographical region of family or orientation, weight, height, etc. Nearly all of these measures were obtained via self report.

References

Variables of this class were used in a total of 24 studies in the sample, were related to 7 other variable classes, in a total of 132 relationships, of which 35 (26%) were significant. Reference numbers of studies are: 83, 132, 133, 314, 344, 351, 566, 755, 757, 767, 856, 999, 1055, 1098, 1099, 1195, 1333, 1401, 1450, 1505, 1751, 1841, 1976, 2076.

Relationships with Other Variable Classes

22. Attitudes toward the task. Moderately related (6/15) but with unclear results

In one study, women were consistently more satisfied with work conditions than men (5/6), but no such relationship held in another study (1/9).

25. Attitudes toward issues, concepts, ideologies. Moderately related (8/21)

Upper classmen were more similar to their faculty advisors in personal values than were lower classmen (2/3). Individuals who were only children, who had more education, and who were Jewish, were more influential in changing others' opinions (3/3), while several other biographical characteristics were not related to influence on others or susceptibility to influence by others (3/12).

62. Perceptions of task behavior and effectiveness. Not related (0/8)

71. Leadership performance. Somewhat related (8/23)

Those with higher education had higher leaderless group discussion scores (6/6), although age and leadership in leaderless group discussions were not related (0/9), and biographical characteristics tended not to be related to leadership in operational settings (2/8).

72. Member task performance in experimental settings. Slightly related (13/51)

In one study, men performed consistently better than women (9/10). Other results do not provide a clear-cut pattern.

74. Member task performance in operational settings: specific measures. Not related (0/7)

77. Group task performance in operational settings: specific measures. Not related (0/7)

Measures such as age and education were not related to performance of industrial work groups or military squads.

11. Member General Abilities

Definition

This variable class includes objective measures of ability such as AGCT scores, California Mental Maturity Test, ACE Psychological Examination, and records of academic or military training course grades or rank in class, as well as peer ratings of athletic ability, intelligence, expertness in music, leadership potential, etc.

References

Variables of this class were used in a total of 29 studies in the sample, were related to 9 other variable classes, in a total of 230 relationships, of which 119 (51%) were significant. Reference numbers of studies are: 1, 132, 133, 254, 404, 450, 512, 715, 728, 767, 793, 927, 979, 1033, 1098, 1195, 1305, 1333, 1354, 1401, 1552, 1751, 1781, 1782, 1963, 1976, 1979, 2046, 2054.

Relationships with Other Variable Classes

11. Member general abilities. Moderately related (16/27) within variable class

There were consistently high intercorrelations among measures such as word analogy scores, vocabulary skills, verbal and mathematical skills, scholastic grades (5/5). Similarly, there were consistent relationships among perceptions of other members' abilities such as expertness in music, sports (11/22).

12. Member task abilities. Highly related (10/15)

The higher a person's intelligence, the more frequently he was rated by others as being a leader, as having power, etc.

46. Induced task conditions. Moderately related (19/45)

Confederates who deliberately performed poorly on the task were rated lower on general motivation and dependability after their role playing than before (15/17). However, type of judgment set (ratings from an "administrative" vs. a "research" set) tended not to be related to ratings of member general abilities (3/25).

52. Pattern of interaction. Slightly related (1/4)

63. Perceptions of social behavior and effectiveness. Moderately related (2/4)

Members who behaved impulsively were rated by their peers as being more independent from adults, but were not rated differently on amount of power, compared to less impulsive children.

71. Leadership performance. Highly related (30/50)

Group members with high general intelligence exhibited high emergent leader behavior in leaderless group discussions (6/7). Peer ratings of a number of abilities were related to leaderless group discussion behavior, but a number of other similar abilities were not (16/26). In an operational setting, the higher a leader's problem-solving ability and word fluency the higher he was rated on leadership abilities by supervisors; however, this held for some departments but not others (8/17).

72. Member task performance in experimental settings. Highly related (28/46)

The higher the member's school grades and intelligence, the better they performed on maze learning tasks (15/15). Intelligence was highly and positively related to performance on two types of intellectual problems, especially for older members (11/16). However, there was little association between intelligence and skill on perceptual tasks such as estimating number of objects (0/4). Human relations role playing performance was related to athletic ability (2/4).

74. Member task performance in operational settings: specific measures. Moderately related (12/29)

The role-playing competence of Air Force officers was positively related to member ratings of intelligence, energy, etc. (8/8), but was not related to other similar peer ratings such as adaptability, orderliness, etc. (0/12).

77. Group task performance in operational settings: specific measures. Not related (1/10)

For example, member intelligence tended not to be related to group performance on air crew tasks and Army field problems.

12. Member Task Abilities

Definition

This variable class includes objective measures of task abilities of members such as achievement or job knowledge tests, training school grades, and tests of retention of material. It also includes self and peer ratings of member task abilities; e.g., ratings of own or others' skills, knowledge, leadership ability, etc.

References

Variables of this class were used in a total of 65 studies in the sample, were related to 20 other variable classes, in a total of 1022 relationships, of which 282 (28%) were significant. Reference numbers of studies are: 83, 125, 132, 133, 201, 298, 301, 361, 362, 398, 417, 433, 438, 439, 450, 462, 473, 608, 642, 660, 678a, 689, 695, 715, 728, 738, 766, 767, 806, 811, 856, 862, 877, 927, 979, 984, 1005, 1055, 1074, 1139, 1195, 1305, 1325, 1354, 1356, 1382, 1564, 1585, 1598, 1639, 1755, 1780, 1785, 1841, 1930, 1961, 1976, 1979, 2000, 2004, 2029, 2046, 2054, 2058, 2108

Relationships with Other Variable Classes

11. Member general abilities. Highly related (10/15)

The higher a person's intelligence, the more frequently he was rated by others as a leader, as having power, etc.

12. Member task abilities. Moderately related (83/164) within variable class

Perceptions of other member task abilities such as leadership ability, combat attitudes, tended to be consistently related to one another (73/144). Those rated by others as leaders and as having various relevant task skills were rated higher by superiors on task proficiency and were

higher on examination scores (8/9). However, objective measures of task ability, such as OCS grades, faculty ratings of leadership ability, tended not to be related to one another (2/11).

21. Attraction to other members and the group. Highly related (20/21)

For example, perceptions of other member general task interests, etc., tended to be related to personal attraction to them.

22. Attitudes toward the task. Not related (0/6)

Member satisfaction with the group leader's ability did not affect feelings of task involvement.

23. Attitudes toward the situation. Moderately related (9/16)

Those rating themselves high on power were rated as having power (6/6). There was a less clear-cut relationship between perceptions of supervisor-imposed discipline and ratings of the supervisor's competence (3/6). Feelings of belongingness to the group were not related to attitudes toward the leader (0/4).

24. Attitudes toward supra-ordinate groups and other outside persons and groups. Slightly related (4/15) with no clear-cut pattern.

25. Attitudes toward issues, concepts, ideologies. Moderately related (4/9)

The lower the authoritarian attitudes of a member, the more frequently he was chosen as a leader (2/2). In a different setting, the extent of perceived deviations of own views from the endorsed views was not related to desire to have a supportive communication partner (0/4).

31. Social position in the group. Highly related (6/6)

The higher a member's military rank, the more frequently he was chosen as having high task skills.

41. Group structure and composition. Somewhat related (12/59)

Groups with a change in leader had members who changed their attitudes toward their leader more than groups which did not have a change in leader (5/6). Judgments of leader skills were not associated with group size for groups larger and smaller than 30 members (7/53).

42. Training and experience. Moderately related (2/4)

After a military training period, group members expressed greater confidence in one another and rated others higher in task proficiency. However, there was no increase in morale or in willingness to go to combat with fellow group members.

46. Induced task conditions. Highly related (14/19)

Confederates who deliberately performed poorly were rated low on task competence by others in the group (8/8). Members of industrial work groups allowed some degree of autonomy in their jobs indicated more satisfaction with their supervisors and changed in attitudes more in the positive direction (2/4) than did members of less autonomous groups (0/3). Members rewarded for group performance changed more in ratings of a poorly performing confederate's task competence than groups whose members were rewarded on an individual basis (3/3).

51. Content of interaction. Not related (1/6)

For example, perceptions of task skills of others were not related to such discussion behavior measures as giving suggestions, asking opinions.

52. Pattern of interaction. Highly related (4/6)

Those who were more active in discussions learned and retained more content knowledge of the topic than less active members.

61. Reactions to the situation. Somewhat related (32/108)

The higher members were rated by others on power, the more they were observed as influencing others directly and indirectly, as receiving deferent behavior from others, etc. However, confidence in own abilities was not related to active vs. passive discussion role, nor were objective measures of supervisory ability related to observed carefulness (1/8). Perceptions of other member's task skills tended not to be related to group discussion morale, cooperativeness, cohesiveness (2/11); and perceived crew member proficiency tended not to be related to air crew coordination (0/30).

71. Leadership performance. Moderately related (23/47)

Leadership nominations by friends were related to observed measures of leadership behavior (5/7). There was a generally positive relationship between ratings of supervisory or leadership potential and performance in leaderless group discussions (11/18), but the relationship was much less consistent for the same variables in an Army setting (6/15).

72. Member task performance in experimental settings. Highly related (4/5)

Over-all grades in Air Force ground school were positively related to grades on a specific written examination.

73. Member task performance in operational settings: global measures. Somewhat related (17/74)

There was a highly positive relationship between squad leader's knowledge of military problems and his related performance on an actual field test (3/3); but a similar relationship between Air Force ground school grades and superiors' ratings of combat performance was not consistently found (2/8). Perceptions of own and other members' task abilities were not related to such measures as flight proficiency (12/63).

74. Member task performance in operational settings: specific measures. Not related (2/11)

76. Group task performance in operational settings: global measures. Slightly related (4/21)

For example, satisfaction with leader tended not to be related to such measures as production rate, simulated air crew task performance, etc.

77. Group task performance in operational settings: specific measures. Not related (31/410)

For example, measures of production line productivity, performance on simulated air crew tasks, tended not to be related to member judgments of competence and confidence in superiors (7/37). Moreover, such objective measures of task ability as ground school grades tended not to be related to measures of performance on simulated air crew tasks (24/373).

13. Group Abilities

Definition

This variable class includes member, observer, and supervisor ratings of group abilities such as performance potentiality, flexibility, crew compatibility in combat, teamwork, motivation, and value to squadron.

References

Variables of this class were used in a total of 13 studies in the sample, were related to 4 other variable classes, in a total of 40 relationships, of which 30 (75%) were significant. Reference numbers of studies are: 182, 404, 418, 438, 439, 512, 606, 806, 887, 1139, 1252, 1756, 1939.

Relationships with Other Variable Classes

41. Group structure and composition. Highly related (10/10)

In groups from size two to seven, larger groups were rated by members as having greater need for guidance and for a definite leader, and were viewed by members as having more competence and ability than was the case in smaller groups.

61. Reactions to the situation. Highly related (11/11)

Air crews rated high on overall value to their squadron, were rated high on working with other crews, handling aircraft, military bearing, etc. (5/5). Air crews rated high on degree of consideration shown among members were also rated high on military bearing, handling their aircraft, working with other crews, etc. (6/6).

76. Group task performance in operational settings: global measures Slightly related (1/5)

Air crew problem-solving test performance was not associated with ratings of over-all training performance adequacy.

77. Group task performance in operational settings: specific measures. Moderately related (8/14)

The higher air crews were rated on overall value to their squadron (by superiors), the greater the number of missions they completed, and the greater their performance effectiveness on a series of simulated air crew tasks (7/8). However, perceptions of task-related abilities of groups were not related to group performance on aircraft manufacturing tasks, surveying tasks, etc. (1/6).

21. Attraction to Members and the Group

Definition

This variable class includes sociometric choices and ratings of absolute or differential liking of other group members, preference for them as social companions, roommates, confidants, etc. It also contains ratings of liking for the group as a whole, willingness to work with this group again, morale, satisfaction with group, pride in group, pleasantness of group, etc.

References

Variables of this class were used in a total of 72 studies in the sample, were related to 15 other variable classes, in a total of 336 relationships, of which 145 (43%) were significant. Reference numbers of studies are: 32, 111, 201, 285, 319, 404, 417, 418, 438, 439, 450, 484, 496, 512, 526, 542, 566, 593, 608, 678a, 715, 766, 767, 777, 778, 806, 811, 849, 856, 919, 944, 950, 972, 984, 999, 1033, 1055, 1075, 1077, 1150, 1195, 1276, 1305, 1420, 1468, 1505, 1523, 1528, 1564, 1567, 1598, 1641, 1650, 1702, 1708, 1716, 1751, 1755, 1780, 1785, 1832, 1871, 1874, 1895, 1914, 1945, 1961, 2046, 2054, 2091, 2104, 2108.

Relationships with Other Variable Classes

01. Personality measures. Not related (0/4)

Personality measures such as Rorschach anxiety, adjustment scores, are not related to personal attraction to members.

12. Member task abilities. Highly related (20/21)

Perceptions of other member's general task interests, etc., consistently related to personal attraction to members.

21. Attraction to members and the group. Moderately related (4/10) within variable class

Measures of personal attraction among members are moderately consistently related to one another.

23. Attitudes toward the situation. Slightly related (1/4)

24. Attitudes toward supra-ordinate groups and other outside persons and groups. Somewhat related (2/6) but with no clear-cut pattern of results

25. Attitudes toward issues, concepts, ideologies. Moderately related (5/12)

For example, authoritarians tend to be less liked by their fellow members than non-authoritarian persons (3/9).

31. Social position in the group. Moderately related (10/19)

The higher a member's military rank the more frequently he was chosen as a desirable personal friend or companion (5/6), and the more he was attracted to his air crew (2/2). Those achieving a higher status (from the experimenter) had more positive feelings about their groups (2/3). Confederates did not differ from other group members in personal attractiveness (1/6).

41. Group structure and composition. Somewhat related (32/92)

Dyads who used projection as a common defense mechanism were more negative about their groups (4/4) than dyads who were dissimilar in defenses or similar in using other types of defenses (0/3). Unspecified between-groups differences were also moderately related to attraction to the group (3/5). The more dissimilar dyads were on marital status, birthplace of parents, outside sources of income, and college attendance, the more mutually attracted they were (7/8). The more similar dyads were on military background and intentions, the greater their mutual attraction (6/10). However, results with triads and quartets yielded no consistent differences between similar and dissimilar groups (4/50). In another setting, members of dyads using projection as a common defense mechanism showed more negativism toward their partner than members of either dissimilar groups or dyads whose members used other defense mechanisms in common (6/9).

42. Training and experience. Moderately related (4/8)

More experience with a military group resulted in less attraction to the group (2/3), while more experience with a laboratory group produced more positive feelings (1/1).

43. Induced social conditions. Highly related (24/30)

Members who felt themselves to be personally compatible, congenial and accepted by others consistently rated others as being personally attractive to them (7/7). The more members perceived themselves as accepted by others, congenial with others, etc., via experimental instructions, the more they reported feelings of group attraction (16/21). Members of groups instructed to work under cooperative arrangements were more attracted to their groups than members of competitive groups (1/2).

45. Task/stimulus characteristics. Somewhat related (4/13)

46. Induced task conditions. Somewhat related (6/15)

Groups who perceived themselves to be successful were more attracted to their groups than failure groups (2/2). Furthermore, members of groups instructed about the high probability of their achievement were less attracted to their groups than less likely goal achievers, while actual goal attainment did not affect feelings toward the group (1/2). However, confederates who purposely performed poorly on the task were not personally liked less after their poor performance than before (1/11).

52. Pattern of interaction. Highly related (23/34)

Members communicated more with those they liked and disliked, and did not communicate as much in discussion with those toward whom they were personally indifferent (8/8). In another setting, personal attraction measures were positively related to indices of discussion participation such as amount of participation, amount of member interaction (11/15). There was a slight relationship between sociometric choices and Rorschach reaction time, number or responses (4/11).

61. Reactions to the situation. Not related (0/34)

Such measures as crew coordination, attraction from the group, were not related to personal attraction among members.

77. Group task performance in operational settings: specific measures. Somewhat related (10/34)

Groups working on a factory production task who were more personally attracted to one another performed more effectively (4/4), but this did not hold for members of military task groups (3/19) nor was group attraction related to clerical or manufacturing productivity (2/9).

22. Attitudes Toward the Task

Definition

This variable class includes questionnaire and interview ratings of satisfaction with the job and its surrounding conditions, attitudes toward the material, attitudes toward the testing procedures, etc.

References

Variables of this class were used in a total of 26 studies in the sample, were related to 8 other variable classes, in a total of 119 relationships, of which 44 (37%) were significant. Reference numbers of studies are: 182, 201, 417, 418, 439, 484, 693, 715, 777, 972, 1033, 1055, 1075, 1139, 1382, 1450, 1451, 1607, 1716, 1756, 1780, 1785, 1884, 1968, 1976, 2058.

Relationships with Other Variable Classes

01. Personality measures. Not related (1/7)

02. Biographical characteristics. Moderately related (6/15)

In one study, women were more satisfied with work conditions than men (5/6), but this relationship did not hold in another study (1/9).

12. Member task abilities. Not related (0/6)

Member satisfaction with the group leader did not affect feelings of task involvement.

22. Attitudes toward the task. Highly related (11/12) within variable class

Job satisfaction, job enjoyment, job opportunities, all tend to intercorrelate.

32. Task or physical position in the group. Somewhat related
12/27)

Members in more central positions in a group's communication net showed higher satisfaction than those in peripheral positions (8/13), but were not different from members in intermediate positions (0/3), and central members did not see their position as having any more status than peripheral members (1/5).

41. Group structure and composition. Not related (1/6)

46. Induced task conditions. Moderately related (12/24)

Those who were given job autonomy or whose task status was improved (by the experimenter) were more satisfied with their job than those not so manipulated (7/10). Instructions regarding task desirability did not relate to rated task desirability (1/6). Groups under perceived success conditions saw the task as more difficult and had more consensus on that judgment (3/4). There was no relationship between perceived probability of goal achievement and task satisfaction (0/2).

77. Group task performance in operational settings: specific measures. Not related (1/22)

23. Attitudes Toward the Situation

Definition

This variable class includes questionnaire and rating scale responses regarding general and specific feelings about situational conditions, such as feelings of ease, of freedom to express opinion, feelings of excessive discipline, feelings of being under pressure, organizational identification, etc.

References

Variables of this class were used in a total of 29 studies in the sample, were related to 10 other variable classes, in a total of 102 relationships, of which 41 (40%) were significant. Reference numbers of studies are: 144, 201, 351, 418, 439, 512, 526, 663, 678a, 790, 806, 849, 979, 984, 1055, 1195, 1244, 1252, 1356, 1451, 1607, 1716, 1756, 1810, 1976, 2046, 2091, 2104, 2108.

Relationships with Other Variable Classes

12. Member task abilities. Moderately related (9/16)

Members rating themselves high on power over others were rated by others as having power (6/6). There was a less clear-cut relationship between perceptions of supervisor-imposed discipline and ratings of supervisor competence (3/6). There was no relationship between feelings of belongingness and attitudes toward the leader (0/4).

21. Attraction to members and the group. Slightly related (1/4)

41. Group structure and composition. Somewhat related (2/6)

Members of dyads who used projection as a common defense mechanism tended to be more insecure than dyads who used dissimilar defenses or who used other defenses than projection. However, such groups did not differ in other similar feelings.

43. Induced social conditions. Somewhat related (8/23)

Members of cooperative groups felt less desire to excel personally, felt more influenced by other members, and more obligated to the group, felt more desire for respect from other members, and also felt more motivation to achieve, excel other groups and please the experimenter, than did members of competitive groups (8/15).

46. Induced task conditions. Highly related (2/2)

Members of groups operating under success conditions saw less discrepancy between their own and other members' opinions (2/2).

51. Content of interaction. Moderately related (5/9)

Members who saw themselves as having more power were observed as attempting to influence others more; however, between-group variability led to results that were not clear-cut.

61. Reactions to the situation. Moderately related (7/12)

Groups whose members perceived consensus of group opinion were judged to be more orderly (3/4); no other systematic pattern was identified.

72. Member task performance in experimental settings. Slightly related (2/8)

Problem-solving performance tends not to be related to variables such as attitudes toward problem-solving.

73. Member task performance in operational settings: global measures. Slightly related (4/16)

Men with feelings of well-being in the Air Force and a sense of safety in flying were rated higher by superiors on combat performance.

77. Group task performance in operational settings: specific measures. Slightly related (1/6)

Such measures as perceived social distance between self and subordinates tended not to be related to production time.

24. Attitudes Toward Supra-Ordinate Groups and Other Outside Persons and Groups

Definition

This variable class is a combination of several kinds of variables, each of which had relatively small frequencies. It includes questionnaire and rating scale measures of attitudes toward supra-ordinate groups or persons such as attitudes toward the (industrial) company, military company, squadron, or Armed Force, teaching profession, etc. In addition, attitudes toward hypothetical outside persons (e.g. most- and least-preferred co-workers), and real and hypothetical outside groups (such as ethnic minority groups) are also included.

References

Variables of this class were used in a total of 17 studies in the sample, were related to 6 other variable classes, in a total of 119 relationships, of which 40 (34%) were significant. Reference numbers of studies are: 83, 201, 411, 439, 450, 606, 608, 678a, 766, 806, 972, 1055, 1354, 1382, 1523, 1787, 2029.

Relationships with Other Variable Classes

12. Member task abilities. Slightly related (4/15)

21. Attraction to members and the group. Somewhat related (2/6)
There was no clear pattern of results.

45. Task/stimulus characteristics. Moderately related (7/16)

Change in attitude toward minority groups was an interactive function of exposure to films and discussions, initial attitudes, and short- and long-range testing times (6/11). In another study, exposure to discussion was not related to attitudes toward minority groups (1/5).

46. Induced task conditions. Highly related (5/6)

Groups were more satisfied with their companies after introduction of experimental conditions than before, regardless of type of manipulation.

76. Group task performance in operational settings: global measures. Somewhat related (3/8)

Army squad members who exhibited favorable attitudes and adjustment to the Army were members of squads rated high on over-all performance (3/4). There was little association of satisfaction with the Air Force or with an industrial organization and ratings of crew or group performance (0/4).

77. Group task performance in operational settings: specific measures. Somewhat related (19/68)

The less similarity of traits which the leader attributed to a hypothetical most- and least-preferred co-worker, the more effective was team performance for basketball teams, surveying teams, air crews (on simulated air crew tasks), and tank teams (on tank training problems). These variables interacted with sociometric patterns, namely, the relationship described above held only when the leader had positive sociometric relationships with others in the crew (9/12). In another study, attraction toward industrial company and the Navy were not related either to factory production work time or military task proficiency (1/10).

25. Attitudes Toward Issues, Concepts, Ideologies

Definition

This variable class includes attitude scale measures of authoritarianism, attitudes toward mental health, personal values, importance of issues used in the study, etc. It also has pattern measures of attitudes, e.g., disagreement between member and endorsed viewpoint, change in private opinions, differences between initial private and later public attitude, etc., for a whole range of attitude topics from attitudes about wire-tapping to questions of taste.

References

Variables of this class were used in a total of 28 studies in the sample, were related to 18 other variable classes, in a total of 375 relationships, of which 105 (28%) were significant. Reference numbers of studies are: 136, 298, 450, 464, 484, 496, 526, 693, 806, 867, 868, 1074, 1077, 1134, 1242, 1249, 1315, 1325, 1401, 1450, 1666, 1742, 1751, 1755, 1996, 2004, 2029, 2104.

Relationships with Other Variable Classes

02. Biographical characteristics. Moderately related (8/21)

Upper classmen were more similar to their faculty advisors in personal values than were lower classmen (2/3). In another setting, individuals with more education, who were only children, and who were Jewish, were more influential in changing others' opinions (3/3). Several other biographical variables were not related to influence on others or susceptibility to influence by others (3/12).

12. Member task abilities. Moderately related (4/9)

Results are somewhat unclear. The lower the authoritarian attitudes of a member, the more frequently he was chosen as a leader (2/2). In a different setting, extent of perceived deviation of own opinion from the endorsed view was not related to the desire to have a supportive communication partner (0/4).

21. Attraction to members and the group. Moderately related (5/12)

Authoritarians tended to be less liked by their fellow members than non-authoritarians (5/9).

25. Attitudes toward issues, concepts, ideologies. Highly related (18/28) within variable class

Measures such as authoritarianism, and personal values, are consistently interrelated.

31. Social position in the group. Highly related (4/4)

Those who desired and attained membership in a high status group had more authoritarian attitudes and showed less reduction in them over time than persons who did not desire and attain such membership.

41. Group structure and composition. Not related (2/11)

42. Training and experience. Not related (1/9)

43. Induced social conditions. Somewhat related (4/12)

There was no clear-cut pattern of results.

44. Influence and conformity pressures. Highly related (1/1)

There was more opinion change with high pressure toward uniformity than with low pressure (1/1).

45. Task/stimulus characteristics. Slightly related (8/34)

There was little consistent change in nationalistic and internationalistic attitudes as a function of discussion/no discussion conditions (5/20). But with no initial differences in opinion or opinion heterogeneity (0/6) those exposed to films or films plus a discussion showed more positive attitude change toward mental health problems (3/4).

46. Induced task conditions. Highly related (2/3)

Members believing that all in the group had equal skills had majorities who changed opinions less but varied more in judgments of topic importance than minorities of those groups (2/3).

51. Content of interaction. Slightly related (22/131)

High authoritarian group leaders were less secure, sensitive and equalitarian in their discussion behavior, made fewer diagnoses, sanction-seeking proposals, initial acts, positive acts, led less, were less agreeable, clarified less and asked for opinions less often than equalitarian leaders.

52. Pattern of interaction. Moderately related (3/5)

There was no clear-cut pattern of results.

61. Reactions to the situation. Somewhat related (15/66)

Authoritarians seemed to exhibit less intelligent discussion behavior (5/8) although such attitudes were not related to adaptability, sensitivity and social abilities shown during discussions (2/14). Authoritarian attitudes were not related to observed discussion behavior measures such as equal participation, friendliness, clique formation, group motivation, competence, communication effectiveness (6/34).

72. Member task performance in experimental settings. Highly related (4/6)

Members with low authoritarian attitudes performed better on a maze task.

73. Member task performance in operational settings: global measures. Not related (1/12)

74. Member task performance in operational settings: specific measures. Moderately related (3/5), but with no clear-cut pattern.

77. Group task performance in operational settings: specific measures. Not related (0/6)

For example, authoritarian attitudes were not related to drill proficiency and cleanness.

31. Social Position in the Group

Definition

This variable class includes both member self reports of group rank or status such as military rank, job title, salary, and experimenter designations, such as assigned leader, assigned status in group, etc.

References

Variables of this class were used in a total of 29 studies in the sample, were related to 12 other variable classes, in a total of 234 relationships, of which 99 (42%) were significant. Reference numbers of studies are: 132, 133, 144, 252, 309, 362, 418, 450, 462, 693, 697, 766, 767, 941, 1099, 1252, 1325, 1428, 1468, 1505, 1598, 1716, 1742, 1780, 1781, 1810, 1945, 2046, 2108.

Relationships with Other Variable Classes

01. Personality measures. Slightly related (12/50)

Leaders of task groups (e.g. fire team captains) exhibited different personality characteristics than group members; however, no such relationship was found for non-task groups.

12. Member task abilities. Highly related (6/6)

The higher a member's military rank, the more frequently he was chosen as having high task skills.

21. Attraction to members and the group. Moderately related (10/19)

The higher a member's military rank the more frequently he was chosen as a desirable personal friend or companion (5/6), and the more he was attracted to his air crew (2/2). Those achieving a higher status (from the experimenter) had more positive feelings about their groups (2/3). Confederates did not differ from other group members in personal attractiveness (1/6).

25. Attitudes toward issues, concepts, ideologies. Highly related (4/4)

Those who attained and desired membership in a high status group showed higher authoritarian attitudes than those who did not desire and attain such membership. Those same persons also showed less reduction in authoritarian attitudes over time.

51. Content of interaction. Somewhat related (26/82)

Those who were appointed leaders of discussion groups diagnosed situations more, initiated more action, gave information more often, and desired action more often than other members (12/13). Remaining results show no particular pattern (14/69).

52. Pattern of interaction. Slightly related (2/10)

61. Reactions to the situation. Moderately related (2/4)

Those with high assigned importance attempted to lead others more often than those with low assigned importance (2/2).

62. Perception of task behavior and effectiveness. Moderately related (10/19)

The higher the member's salary and position in the group, the more perceived authority he felt he had and the more he delegated responsibility (4/6). Position in group as confederate or naive member tended not to be related to perception of performance effectiveness of others (2/8). The higher the rank of an air crew member, the higher he rated air crew performance adequacy (4/5).

63. Perceptions of social behavior and effectiveness. Moderately related (20/32)

The higher a member's status in an air crew, the more he reported attempting to influence others (5/5). The higher the member's rank in the group, the more others indicated they worked with that person (10/16), although there was some ambiguity of results due to between-group variations. Social position in the group tended not to be related to perceptions of social behavior of other members, such as their influence (2/8).

71. Leadership performance. Highly related (6/6)

Members with higher group rank exhibited more leadership behavior in leaderless group discussions.

73. Member task performance in operational settings: global measures. Slightly related (1/4)

74. Member task performance in operational settings: specific measures. Not related (0/7)

32. Task or Physical Position in Group

Definition

This variable class is composed of experimenter-designated variables, e.g. member's centrality or independence in communication net, his job position, his seating position vis a vis other members, etc.

References

Variables of this class were used in a total of 8 studies in the sample, were related to 4 other variable classes, in a total of 82 relationships, of which 30 (36%) were significant. Reference numbers of studies are: 85, 128, 424, 1139, 1145, 1702, 1796, 1968.

Relationships with Other Variable Classes

22. Attitudes toward the task. Moderately related (12/27)

Members in more central positions in a group's communication net showed higher task satisfaction than those in extreme positions (8/13), but did not differ from those in intermediate positions (0/3). However, central members did not see their positions as having more status than peripheral members (1/5).

52. Pattern of interaction. Highly related (15/19)

The more centrally located members were in a group's communication net, the more heavily they became involved in the transmission of messages (11/15).

71. Leadership performance. Not related (3/23)

Leaderless group discussion behavior was not related to seating positions in the group.

72. Member task performance in experimental settings. Not related (0/13)

Performance measures such as symbol identification were not related to centralness in the communication net.

41. Group Structure and Composition

Definition

This variable class includes group structural properties, such as group size (including individual vs group), communication net, organized-ness and permanency of group, and indices of homogeneity/heterogeneity of group members with respect to certain characteristics (age, sex, personality traits, and task skills). It also includes a number of tests of significance of differences among individual groups (e.g., among air crews, between different training classes, etc.), in which no conceptual basis for the obtained differences is indicated.

References

Variables of this class were used in a total of 51 studies in the sample, were related to 16 other variable classes, in a total of 590 relationships, of which 229 (39%) were significant. Reference numbers of studies are: 1, 40, 101, 136, 344, 417, 470, 542, 576, 642, 663, 693, 740, 778, 789, 793, 806, 874, 877, 919, 968, 999, 1046, 1058, 1074, 1086, 1098, 1099, 1139, 1195, 1199, 1209, 1243, 1252, 1325, 1450, 1486, 1557, 1558, 1607, 1666, 1702, 1705, 1706, 1708, 1756, 1895, 1920, 1934, 1945, 1996.

Relationships with Other Variable Classes

01. Personality measures. Moderately related (1/2)

Groups homogeneous in use of projection as a defense mechanism showed less achievement motivation than groups similar in use of other defenses or dissimilar in defenses.

12. Member task abilities. Somewhat related (12/59)

Groups with a change in leader had members who changed their attitudes more toward their leader than groups without such changes (5/6). Judgments of leader skill were not related to variations in group size (less than or more than 30 members) (7/53).

13. Group abilities. Highly related (10/10)

In groups from size two to seven, larger groups were rated by members as having greater need for guidance and for a definite leader, and were viewed by members as having more ability and competence than was the case in small groups.

21. Attraction to members and the group. Somewhat related (32/92)

Dyads using projection as a common defense mechanism were more negative about their groups (4/4) than dyads dissimilar in defenses or using other defenses in common (0/4); they also showed more negativism toward their partners (6/9). In another setting, the more dissimilar dyads were on marital status, birthplace of parents, outside sources of income and college attendance, the more mutually attracted they were (7/8); while the more similar they were in military background and intentions the greater their mutual attraction (6/10). However, results with triads and quartets yielded no consistent difference between similar and dissimilar groups (4/50). There also were unspecified between-group differences in attraction to the group (3/6).

22. Attitudes toward the task. Not related (1/6)

For example, homogeneity on personality characteristics was not related to task satisfaction.

23. Attitudes toward the situation. Somewhat related (2/6)

Dyads using projection as a common defense mechanism were more insecure than dissimilar dyads or dyads using other defenses in common, but did not differ on other attitudes toward the situation (2/6).

25. Attitudes toward issues, concepts, ideologies. Not related (2/11)

For example, individuals did not differ from two or three man groups in general attitudes or changes in attitudes toward topic importance.

51. Content of interaction. Somewhat related (15/48)

Two and three man groups expressed more ideas and showed more changes in responses than individuals, although two and three man groups did not differ from one another (4/5). Groups which had an emergent leader had members with higher leadership behavior in discussions (5/7), while the leadership behavior of designated leaders was not different from that of other group members (0/4). In another setting, group permanency was not related to group discussion content (6/32).

52. Pattern of interaction. Slightly related (5/22)

For example, size and type of communication net tended not to be related to amount of communication, degree of aggressiveness in interaction, friendliness, etc.

61. Reactions to the situation. Moderately related (21/41)

Members with equal power were more likely to form coalitions; members with lower power were more likely to initiate coalitions; and members with high power relative to another were more likely to be involved in coalitions with disproportionate distribution of rewards (10/18). Groups homogeneous in authoritarian attitudes were rated as more productive and communicating better than less homogeneous groups after a period of experience (2/2). Results for ratings of competence and definiteness of leadership were less clear-cut (3/6). There was only a slight relationship for member competency, sensitivity in discussion, etc. (2/8). In a frustrating situation, organized groups showed more we-feeling, frustration, and mutual encouragement than unorganized groups (4/6).

62. Perceptions of task behavior and effectiveness. Somewhat related (32/94)

Members of heterogeneous groups more often saw others as more qualified than themselves (2/3). In another setting, dyads using projection as a common defense more often saw their partners as less successful (2/3) and saw their groups as performing more poorly (3/4) than dyads with dissimilar defenses or with other defenses in common. In another study, the smaller the group (ranging from 2 to 4) the more effective members saw them as performing (4/4). Leaders of groups larger than 30 were more often rated as coordinating activities, giving clear rules to members, having greater achievement effort, physical courage and wise delegation of authority (7/26). Members of groups smaller than 30 more frequently indicated "don't know" or "inapplicable" to a whole series of items about the leader (10/26), while there were no consistent differences between large and small groups on behavior "occasionally exhibited" by leaders (2/26).

63. Perceptions of social behavior and effectiveness. Highly related (3/4)

Organized groups exhibited more fear in a threatening situation than unorganized groups (1/1). Dyads using projection as a common defense mechanism attempted to influence each other more than dissimilar dyads or dyads using other defenses in common (2/2).

72. Member task performance in experimental settings. Somewhat related (27/68)

Statistically derived measures of "group" judgment were more accurate than "individual" judgments, especially for unfamiliar materials (3/3). Working alone or in the presence of others did not affect motor performance (2/11). Arithmetic performance did not differ for individuals working alone and in groups, but there were significant differences due to age, sex, and race of members in an unclear pattern (15/27). Performance did not differ for various communication nets except that Y nets were better than circle nets (4/4).

74. Member task performance in operational settings: specific measures. Moderately related (16/26)

There was a negative relationship between group size (ranging from 10 to 50) and performance effectiveness in one situation (8/9) but not in a different situation (1/5).

75. Group task performance in experimental situations. Moderately related (25/62)

Those working alone performed better on a maze task than those working in groups (3/3). Similar results held for "extreme errors" in another situation (2/2) although there were generally no differences between individual and group performance (1/3). On symbolic tasks, those in groups performed better than those working alone, although less so on arithmetic and verbal problems (8/14). In another setting there were some differences in performance among different types of communication nets (9/35), with circle nets being better than wheel nets on complex symbolic problems (5/5) but not different on simple problems (0/5).

77. Group task performance in operational settings: specific measures. Moderately related (25/39)

Small groups were more efficient than larger groups for groups ranging from 10 to 50 members (5/5). Unspecified differences among groups, such as air crews and training classes, as well as mission differences, were related to differences in group performance (20/34).

42. Training and Experience

Definition

This variable class covers member self reports of time in combat, time in job, etc., and experimenter designations of stage of training, amount of training or practice, testing or stimulus sequence, etc.

References

Variables in this class were used in a total of 50 studies in the sample, were related to 12 other variable classes, in a total of 225 relationships, of which 99 (44%) were significant. Reference numbers of studies are: 1, 53, 83, 144, 309, 351, 404, 433, 450, 593, 715, 757, 766, 807, 837, 856, 941, 1005, 1033, 1055, 1086, 1099, 1122, 1150a, 1227, 1236, 1249, 1252, 1276, 1325, 1333, 1345, 1354, 1466, 1468, 1572, 1574, 1575, 1585, 1641, 1702, 1705, 1708, 1716, 1755, 1756, 1998, 1999, 2101, 2108.

Relationships with Other Variable Classes

01. Personality measures. Highly related (2/2)

Groups trained in discussion procedures showed less change in defensiveness than untrained groups.

12. Member task abilities. Moderately related (2/4)

After a military training period group members expressed more confidence in one another and rated one another higher in task proficiency but did not increase morale or in willingness to go to combat with one another.

21. Attraction to members and the group. Moderately related (4/8)

More experience with a military crew resulted in less member attraction to the group (2/3) while more experience with a laboratory group produced more positive feelings (1/1).

25. Attitudes toward issues, concepts, ideologies. Not related (1/9)

52. Pattern of interaction. Highly related (4/4)

61. Reactions to the situation. Not related (3/30)

62. Perceptions of task behavior and effectiveness. Somewhat related (8/44)

One set of results, while unclear, suggest that members of groups in a success condition saw their groups as performing better than members of failure groups as the task series progressed (5/10). In other settings, measures such as (pre-experimental) flying experience tended not to be related to perceptions of leader supervisory behavior, to crew agreements on ratings of other members (2/29). Also, leaders trained in human relations techniques were not rated any higher by their subordinates on human relations behavior than those not receiving such training (1/5).

71. Leadership performance. Slightly related (4/18)

Leaders with training in leader techniques were rated higher on permissiveness, frankness, regulating discussion participation, and effectively resolving conflicts than leaders without such training. However, trained and untrained leaders did not differ on several other similar measures.

72. Member task performance in experimental settings. Highly related (33/46)

Members exposed to direct training had higher performance ratings than those trained by a more passive method (3/3). In another setting, there was little performance improvement with experience (1/4). However, the greater the training on maze, switch adjustment or similar motor tasks, or the later the period of testing, the better the performance (28/35).

75. Group task performance in experimental settings. Highly related (15/26)

Group performance improved over successive stages of practice on symbolic/motor tasks (8/8). On symbolic tasks, all groups showed learning and greater performance proficiency over time (4/4). Sequence of experimental conditions did not relate to performance (3/14).

76. Group task performance in operational settings: global measures. Highly related (9/11)

Length of time in job was related to group effectiveness (4/5). Crews with more flying experience were rated by supervisors as being more proficient (5/6).

77. Group task performance in operational settings: specific measures. Moderately related (14/23)

Group performance improved over successive stages of practice (9/13). Crew aircraft flying experience was positively related to performance on simulated air crew tasks, but not on other tasks (5/10).

43. Induced Social Conditions

Definition

This variable class primarily includes social perceptions and conditions induced by experimenter instructions, falsification of feedback, and behavior of an experimenter-confederate. Together with perceptions of congeniality, compatibility with other members, of own and others' relative statuses, of threat from various sources and of various degrees, and of teammate indifference. This class also contains experimental manipulations of leadership style (by a leader who is an experimenter-confederate) such as authoritarian vs democratic leadership, instructions to cooperative/compete, etc.

References

Variables of this class were used in a total of 29 studies in the sample, were related to 13 other variable classes, in a total of 384 relationships, of which 128 (33%) were significant. Reference numbers of studies are: 96, 144, 189, 252, 384, 526, 542, 566, 755, 868, 979, 984, 1075, 1086, 1128, 1129, 1242, 1243, 1315, 1468, 1472, 1585, 1607, 1641, 1705, 1755, 1782, 1998, 2091.

Relationships with Other Variable Classes

01. Personality measures. Not related (0/5)

For example, anxiety and relaxation were not related to degree of perceived threat.

21. Attraction to members and the group. Highly related (24/30)

Those members who felt themselves to be personally compatible, congenial or accepted by others consistently rated others as being personally attractive to them (7/7) and reported feelings of group attractions (16/21).

Members of groups under cooperative instructions were more attracted to their groups than those under competitive instructions (1/2).

23. Attitudes toward the situation. Somewhat related (8/23)

Cooperative groups had less desire to personally excel and felt more influenced by others than competitive groups (3/3). They also felt more motivation to achieve, to please the experimenter, and to excel other groups, but the latter results hold only for some tasks (3/6). Members of cooperative groups felt more obligated to their group and more desire for respect from others but these results held only for some tasks (2/6).

25. Attitudes toward issues, concepts, ideologies. Somewhat related (4/12)

There was no clear-cut pattern of results.

44. Influence and conformity pressures. Somewhat related (4/11)

Those who saw themselves as not personally accepted by others tended to conform more to group perceptual judgments (2/2). However, in a different setting, members differing in both perceived acceptance and attraction were not different in conformity behavior (2/9).

51. Content of interaction. Somewhat related (17/84)

Inductions such as threat conditions tended not to be related to discussion behavior measures such as agreements, tension, opinion giving (5/61). However, members of groups in cooperative conditions showed less criticism aggression, defensiveness and blocking behavior on human relations tasks than members of competitive groups (6/6), but there were no differences on puzzle tasks (0/6). Competitive groups had more members working simultaneously than cooperative groups (5/5).

52. Pattern of interaction. Somewhat related (15/47)

Social support from confederates was positively related to length of speeches (for stable personalities only) and to low response latency (6/8), to group activity and time needed to complete the task (3/3) but for stable personalities only (0/2). In another setting, perceived member compatibility tended to be related to amount of communication but with no clear-cut pattern of results (1/5).

61. Reactions to the situation. Somewhat related (18/59)

Cooperative groups were rated as more coordinated, orderly, and having fewer communication difficulties than competitive groups (8/8), worked together more and were more attentive (5/8). Groups working under no threat conditions were rated higher on efficiency and adaptability than threatened groups (2/2), although such differences did not occur for other sources and targets of threat (0/4). In other settings, perceived threat was not related to such measures as group goal orientation, conflict, cohesiveness (0/21). Other results did not show a clear-cut pattern.

62. Perceptions of task behavior and effectiveness. Somewhat related (12/45)

Groups anticipating membership changes and working under cooperative sets rated other members' performance high (4/4), while perception of own task behavior was not related to knowledge of membership changes, etc. (0/4). Those working under cooperative rather than competitive sets saw more group cooperation, assistance from others, etc. (4/6). Those perceiving congeniality with co-workers estimated co-workers performance to be good (3/4). In other settings, however, source, amount and target of threat were not related to member judgments of such measures as group goal orientation, conflict, cohesiveness (1/27).

63. Perceptions of social behavior and effectiveness. Not related (1/7)

For example, perceptions of member behavior such as aggression tended not to be related to conditions such as induced threat.

72. Member task performance in experimental setting. Not related (3/31)

Members of democratically led groups made more correct responses and fewer errors early in performance on a maze task than did members of authoritarian led groups, but did not differ in performance later in the task series (3/7). In other settings, conditions such as cooperation/competition did not make for differences in performance, knowledge of audience did not aid recall, etc. (0/24).

75. Group task performance in experimental settings. Highly related (23/31)

Leaders instructed to behave in an authoritarian fashion had groups who performed better than non-authoritarian led groups (9/9). Cooperative groups performed more adequately than competitive groups (7/8). However,

variations by a confederate in social reinforcement of others or in authoritarian-democratic behavior did not consistently relate to group performance effectiveness (4/11).

77. Group task performance in operational settings: specific measures. Not related (1/14)

Authoritarian vs democratic leadership type was not related to performance on a simulated military task.

44. Influence and Conformity Pressures

Definition

This variable class includes induced conditions having to do with pressures toward uniformity of opinion or response, such as use of confederates giving wrong answers, or falsification of feedback about group opinion.

References

Variables of this class were used in a total of 14 studies in the sample, were related to 6 other variable classes, in a total of 60 relationships, of which 21 (35%) were significant. Reference numbers of studies are: 111, 122, 285, 314, 526, 621, 849, 984, 1005, 1244, 1316, 1456, 1919, 2101.

Relationships with Other Variable Classes

25. Attitudes toward issues, concepts, ideologies. Highly related (1/1)

Those exposed to high pressures toward opinion uniformity changed more than those under low pressure conditions (1/1).

43. Induced social conditions. Somewhat related (4/11)

Those perceiving themselves as not personally accepted by others tended to conform more to group perceptual judgments (2/2). In a different setting, members differing in both perceived acceptance and attraction were not differentiated on the basis of conformity behavior (2/9).

52. Pattern of interaction. Somewhat related (9/25)

There was little general change in an advocated direction as a function of activeness of participation (2/15), but those exposed to pressure changed more than those not exposed (6/6).

63. Perceptions of social behavior and effectiveness. Not related (1/6)

Perceptions of own social behavior, such as attempted influence, are not related to group pressure (1/4).

72. Member task performance in experimental settings. Highly related (2/2)

Those working under continuous influence pressures showed more conformity than those working under no pressures.

75. Group task performance in experimental settings. Slightly related (4/15)

Groups exposed to a unanimous, incorrect majority erred in their performance in the direction of the majority more than groups not exposed to such pressures (3/3); the generality of this finding is shown by the absence of differences between several types of groups (0/9).

45. Task/Stimulus Characteristics

Definition

This variable class includes experimental variations in nature and difficulty of task or stimulus materials, such as subject matter differences, familiarity of objects judged, clarity/ambiguity of stimulus or stimulus differences, and relevancy of task information.

References

Variables of this class were used in a total of 42 studies in the sample, were related to 7 other variable classes, in a total of 153 relationships, of which 64 (42%) were significant. Reference numbers of studies are: 53, 144, 171, 212, 351, 418, 428, 740, 757, 856, 909, 972, 1005, 1046, 1055, 1075, 1098, 1134, 1209, 1244, 1249, 1354, 1401, 1420, 1456, 1572, 1574, 1575, 1603, 1684, 1702, 1706, 1708, 1751, 1761, 1764, 1832, 1930, 1934, 1996, 2008, 2029.

Relationships with Other Variable Classes

21. Attraction to members and the group. Somewhat related (4/13)
There was no clear-cut pattern of results.

24. Attitudes toward supra-ordinate groups and other outside groups or persons. Moderately related (7/16)

Changes in attitudes toward minority groups was an interactive function of exposure to film and discussion, initial attitudes, and short- and long-range testing times (6/11).

25. Attitudes toward issues, concepts, ideologies. Slightly related (8/34)

There was little consistent change in nationalistic and internationalistic attitudes as a function of discussion-no discussion conditions (5/20). In another setting, while there were no prior differences in opinion or opinion

heterogeneity about mental health concepts (0/6), those exposed to films or films and discussion showed more positive change than those not exposed (3/4).

61. Reactions to the situation. Moderately related (19/45)

Those exposed to a frustrating situation showed more cooperation and less conflict if they were strong friends (6/6), while both weak and strong friends showed negative and destructive behavior under frustration (10/10). There was no relationship between different types of play situation and various types of play behavior (social, social parallel, emotionality, etc.) (0/15). Degree of voluntariness of participation in a discussion was not related to subsequent volunteering behavior (0/4).

63. Perceptions of social behavior and effectiveness. Highly related (4/4)

There were more reported transmissions of rumors in an ambiguous situation than in a clearly defined situation.

72. Member task performance in experimental settings. Moderately related (15/28)

Group problem-solving was more effective if preceded by a discussion (2/4). In another setting, the greater the clarity of the stimulus the more accurate and less variable were member judgments (6/6). In another setting, however, there was no clear relationship between accuracy and differences in materials (e.g. familiar vs. unfamiliar, social science vs. natural science, etc.) (7/17).

75. Group task performance in experimental settings. Moderately related (7/13)

The greater the discrepancy between the standard stimulus and the stimulus being judged, the greater the performance error (7/9). However, time and phase aspects of the task were not related to group performance (0/4).

46. Induced Task Conditions

Definition

This variable class primarily includes task perceptions and conditions induced by experimental instructions. For example, it includes variations in perceived success or probability of success, perceived distribution of rewards, task vs. ego-oriented sets, variations in motivation and task desirability, requirement to reach a decision, and opportunity for mobility.

References

Variables of this class were used in a total of 34 studies in the sample, were related to 15 other variable classes, in a total of 250 relationships, of which 117 (47%) were significant. Reference numbers of studies are: 171, 418, 512, 593, 693, 697, 715, 927, 984, 1033, 1058, 1077, 1236, 1382, 1450, 1456, 1472, 1572, 1574, 1575, 1639, 1684, 1705, 1706, 1716, 1761, 1780, 1832, 1919, 1920, 1926, 2008, 2076, 2108.

Relationships with Other Variable Classes

11. Member general abilities. Moderately related (19/45)

Confederates who deliberately performed poorly on the task were rated lower on general motivation and dependability after their role playing than before (15/17). There was little relationship between the type of judgment set (an "administrative" vs. a "research" set) and obtained ratings of general member abilities (3/25).

12. Member task abilities. Highly related (14/19)

Confederates who deliberately performed poorly on the task were rated low on task competence by others in the group (8/8). Members of industrial work groups who were allowed some degree of autonomy in their

jobs were more satisfied with their supervisors and changed in attitudes more in the positive direction (2/4) than member of less autonomous groups. In another setting, members rewarded for group performance changed more in ratings of a poorly performing confederate's task competence than did members who were rewarded on an individual basis (3/3).

21. Attraction to members and the group. Somewhat related (6/15)

Members of groups who perceived themselves to be successful were more attracted to their groups (2/2). Groups instructed about the high probability of goal achievement were less attracted to their groups than less likely goal achievers, while actual goal attainment did not affect feelings for the group (1/2). However, confederates who performed poorly were not personally liked less after their poor performance than before it (1/11).

22. Attitudes toward the task. Moderately related (12/24).

Groups under perceived success conditions saw their tasks as more difficult and had more consensus on this judgment than groups under failure conditions (3/4). Perceived probability of goal achievement was not related to task satisfaction (0/2). Members whose task status was improved, and members who were given some degree of job autonomy, were more satisfied with their jobs than other members (7/10). However, instructions regarding task desirability did not relate to perceptions of task desirability (1/6).

23. Attitudes toward the situation. Highly related (2/2)

Groups under success conditions saw less discrepancy between their own and other members' opinions (2/2).

24. Attitudes toward supra-ordinate groups and other outside persons and groups. Highly related (5/6)

Groups were more satisfied with their companies after introduction of experimental conditions than before, regardless of type of manipulation.

25. Attitudes toward issues, concepts, ideologies. Highly related (2/3)

Groups in which members believed that all in the group had equal skills had majorities who changed opinions less but varied more in judgments of topic importance than minorities of those groups (2/3).

51. Content of interaction. Highly related (8/11)

Those in disadvantageous but potentially upward mobile situations within the overall group sent fewer irrelevant communications to others, conjectured more about the desired job, were less critical of higher status members and exhibited less cohesive communications about their own group.

52. Pattern of interaction. Somewhat related (8/18)

Those in disadvantageous but potentially upward mobile situations within the overall group communicated more with those in high status positions than with other low status members (3/4). In another setting, members operating under ego-oriented instructions showed no different decision times than those operating under task-oriented instructions (2/9). Conditions of induced motivation tended somewhat to be related to amount of communication, but without a clear-cut pattern (2/5).

61. Reactions to the situation. Moderately related (5/10)

Members operating under high motivation conditions exhibited higher motivation (3/3). In another setting, requirements to reach a decision about volunteering, or the publicness of that decision, were not related to member volunteering or other positive responses (1/5).

62. Perceptions of task behavior and effectiveness. Slightly related (12/65)

Members of groups operating under perceived success saw their groups more as a vehicle to goal attainment than did members of failure groups (3/3). In another setting, members operating under success conditions did not rate other members' performances high compared to groups in a failure condition (0/4). In still another setting, results suggested that perceived success was associated with higher ratings of group performance effectiveness than a failure condition (15/51). In another study, members allowed some autonomy of decision were more satisfied with their superior's job performance (3/4) than were those in a hierarchal decision-making situation (1/3).

72. Member task performance in experimental settings.
Moderately related (3/5)

Problem-solving performance was more effective if groups were required to reach a decision than if they were not (1/2).

74. Member task performance in operational settings. Highly related (7/7)

Employees operating under general conditions of decision autonomy had better job performance than those working under a more hierarchal arrangement.

75. Group task performance in experimental settings. Highly related (9/13)

Groups receiving confirmation of expected actions by the experimenter were better performers than those whose expectations about procedures were contradicted (5/6). A systematic distribution of information in communication nets rather than a random distribution among members, aided effectiveness especially for the comcom (each communicating to each) net (3/4). There was no such difference for degree of knowledge about the information distribution (0/2).

77. Group task performance in operational settings: specific measures. Highly related (5/7)

Groups with immediate access to relevant information performed better than those with difficult access to task related information (2/2). In another study, however, dispersion and directness of information availability was not as clearly linked to group performance (2/4).

47. Feedback and Reinforcement

Definition

This variable class includes experimental manipulations of reinforcements (such as continuous negative or positive reinforcement) and of knowledge of results (such as variations in methods of critique, feedback of own or of partner's performance error data, etc).

References

Variables of this class were used in a total of 16 studies in the sample, were related to 6 other variable classes, in a total of 69 relationships, of which 20 (29%) were significant. Reference numbers of studies are: 189, 695, 807, 972, 1085, 1236, 1451, 1466, 1528, 1557, 1585, 1602, 1641, 1914, 1919, 1940.

Relationships with Other Variable Classes

51. Content of interaction. Not related (0/4)

52. Pattern of interaction. Not related (1/11)

61. Reactions to the situation. Not related (2/19)

For example, praise or criticism of Air Force instructor was not related to crew orderliness, similar observed group characteristics.

72. Member task performance in experimental settings.
Moderately related (5/12)

Members working under positive reinforcement made fewer yielding errors than members working under negative reinforcement (2/2). In another setting, members performed better when feedback was their own error data (3/4) but in another study there was no difference in performance as a function of whether feedback was own or a combination of own and partner data (0/6).

76. Group task performance in operational settings: global measures. Somewhat related (2/6)

The more personal criticism instructors gave crews about performance, and the more they praised their crews, the better was the group performance (2/2), although frequency of explanations, illustrations, etc. did not affect crew performance (0/4).

77. Group task performance in operational settings: specific measures. Moderately related (10/17)

Different performance critique techniques produced some differences in performance of groups on later tasks. For example, expert critiques were better than unstructured crew-centered critiques and self-critiques, but were not better than structured methods (3/4). Self-critique procedures were less effective than expert critiques but were not different from any of the other methods (1/3). An unstructured technique was poorer than an expert or structured procedure but was not different from self-and non-critique methods (2/4). Structured methods were better than unstructured ones, but no different than other procedures (1/4).

51. Content of Interaction

Definition

This variable class covers indices of the substantive nature of group interaction including such aspects as goal-setting, information-giving, agreeing, opinion-giving, asking for suggestions, etc.

References

Variables of this class were used in a total of 27 studies in the sample, were related to 15 other variable classes, in a total of 584 relationships, of which 171 (29%) were significant. Reference numbers of studies are: 136, 182, 212, 252, 272, 362, 418, 462, 512, 526, 663, 867, 950, 1005, 1046, 1122, 1128, 1145, 1266, 1345, 1558, 1841, 1914, 1926, 1939, 1945, 1996.

Relationships with Other Variable Classes

01. Personality measures. Slightly related (2/10)

For example, personality adjustment measures tended not to be related to irrelevant communications, job questions, etc.

12. Member task abilities. Not related (1/6)

For example, perceptions of other member's task abilities were not related to discussion behavior such as giving suggestions, asking opinions.

23. Attitudes toward the situation. Moderately related (5/9)

Members who saw themselves as having more power were observed as attempting to influence others more. Variations between groups tended to make results less clear-cut.

25. Attitudes toward issues, concepts, ideologies. Slightly related (22/131)

Leaders with high authoritarian attitudes were less secure, submissive, sensitive and equalitarian in their discussion behavior. They also made fewer action-seeking proposals, initial acts, positive acts, diagnoses and led less than those with lower authoritarian scores. They also were less agreeable, diagnosed and clarified less, asked less often for expressions of opinions, were more withdrawn and inattentive, than equalitarian leaders.

31. Social position in the group. Somewhat related (26/82)

Appointed leaders of discussion groups diagnosed situations more often, initiated action more often, more often gave information and tended to desire action, more than other members (12/13). Remaining results show no particular pattern (14/69).

41. Group structure and composition. Somewhat related (15/48)

Two and three person groups expressed more ideas and showed more change in responses than individuals, but two and three man groups did not differ from one another (4/5). Groups with an emergent leader had members whose leadership behavior in discussions was higher than those groups without an emergent leader (5/7). Designated leader discussion behavior was no different from the leadership behavior of others in the group (0/4). In another setting, differences in group permanency did not tend to be related to differences in discussion behavior of members or group (6/32).

43. Induced social conditions. Somewhat related (17/84)

Group members operating under cooperative conditions exhibited less criticism, less aggression, less defensiveness, and less blocking behavior than group members working under competitive conditions for a human relations task (6/6) but not for a puzzle task (0/6). On the other hand, more members worked simultaneously in competitive groups than in cooperative groups (5/5). Various threat conditions were not related to discussion behavior measures (5/61).

46. Induced task conditions. Highly related (8/11).

Members in disadvantageous but potentially upward mobile situations within the overall group sent fewer irrelevant communications to others, conjectured more about the desired job, were less critical of higher status members, and exhibited less cohesive communications about their own group.

47. Feedback and reinforcement. Not related (0/4)

For example, the nature of intra-group communication was not affected by feedback about performance success.

51. Content of interaction. Moderately related (15/32) within variable class.

52. Pattern of interaction. Moderately related (5/9)

High discussion participants elicited more orientation comments, questions, and negative comments than did more passive members (3/3) but did not differ in positiveness of responses, suggestions and opinions (0/3).

71. Leadership performance. Moderately related (8/15)

Emergent leaders were higher on problem proposing, information seeking and ego involvement, and lower on development giving than other members (4/4). They were not different from others on goal setting, information giving, opposing, supporting, etc. (0/7).

72. Member task performance in experimental settings.
Moderately related (4/8)

There was no clear-cut pattern of results.

75. Group task performance in experimental settings. Somewhat related (11/29)

There was no clear-cut pattern. Successfully performing groups seemed to exhibit less disagreements and hostility and more support among members than less successful groups. Also, more successful groups produced stories about hypothetical groups which contained satisfactory outcomes, orderliness, harmony, etc.

76. Group task performance in operational settings: global measures. Somewhat related (32/106)

Crews rated as more effective in combat produced stories about hypothetical groups which contained more perceptions of satisfactory outcomes, orderly functioning, friendship, productivity, agreement, etc.

52. Pattern of Interaction

Definition

This variable class includes indices of the formal properties of the interaction process, such as number of communications (overall, by a particular member, or between a particular pair of members), length of time spent talking, time for making a decision, number of simultaneous conversations, number of participating members, etc.

References

Variables of this class were used in a total of 35 studies in the sample, were related to 16 other variable classes, in a total of 275 relationships, of which 157 (57%) were significant. Reference numbers of studies are: 1, 81, 122, 136, 144, 384, 418, 439, 484, 512, 526, 593, 693, 715, 740, 869, 904, 919, 972, 984, 1139, 1354, 1420, 1468, 1575, 1702, 1708, 1755, 1761, 1796, 1841, 1996, 2008, 2101, 2108.

Relationships with Other Variable Classes

11. Member general abilities. Slightly related (1/4)

12. Member task abilities. Highly related (4/6)

Members who were more active in discussions learned and retained more content knowledge of the topic than less active members.

21. Attraction to members and the group. Highly related (23/34)

Members communicated more with those whom they liked and disliked, less with those to whom they were personally indifferent (8/8). In another setting, personal attraction was related to various measures of discussion participation such as amount of participation, amount of member interaction, etc. (11/15). There was a slight relationship between sociometric choices and measures such as Rorschach reaction time, number of responses (4/11).

25. Attitudes toward issues, concepts, ideologies. Moderately related (3/5)

31. Social position in the group. Slightly related (2/10)

32. Task/physical position in the group. Highly related (15/19)

The more central members were in a group's communication net, the more heavily they became involved in the transmission of messages (11/15).

41. Group structure and composition. Slightly related (5/22)

For example, group size and type of communication net tended not to be related to amount of communication, degree of aggression, friendliness, etc.

42. Training and experience. Highly related (4/4)

43. Induced social conditions. Somewhat related (13/32)

Social support received from a confederate was positively related to length of speeches (for stable personalities only) and low response latency (6/8); to more group activity and less time to complete task for stable personalities (3/3) but not for unstable personalities (0/2). Perceived member compatibility tended to be related to amount of communication but without a clear-cut pattern of results (1/5).

44. Influence and conformity pressures. Somewhat related (9/25)

In general, there was little relationship between level of participation and judgment change in an advocated direction (2/15); but those exposed to pressures changed more than those not exposed to pressures (6/6).

46. Induced task conditions. Somewhat related (8/18)

Members in relatively disadvantageous but potentially upward mobile positions within the overall group communicated more with those in high status than with other low status members (3/4). In another setting, members under ego-oriented instructions did not differ in decision times from members under task-oriented instructions (2/9). Conditions of induced motivation tended somewhat to be related to amount of communication, but without a clear-cut pattern (2/5).

47. Feedback and reinforcement. Not related (1/11)

For example, amount of praise, criticism by Air Force instructor tended not to be related to measures of group discussion behavior.

51. Content of interaction. Moderately related (5/9)

High discussion participators elicited more orientation comments, questions, and negative comments than did more passive members (3/3) but did not differ in positiveness of responses, suggestions, and opinions (0/3).

52. Pattern of interaction. Highly related (64/67) within variable class

For example, members ranking high as initiators of discussion ranked high as recipients of communications from others.

72. Member task performance in experimental settings. Not related (0/5)

For example, various measures of speech quality, articulation, etc., were not related to rate of verbal participation.

77. Group task performance in operational settings: specific measures. Not related (0/4)

61. Reactions to the Situation

Definition

This variable class contains situational aspects of member and group behavior which are not direct indices of task performance effectiveness, as observed by the experimenter or others outside the group. It includes measures of task vs. interpersonal focus of activity, employee turnover, copying of other member behavior, adaptability or flexibility of group, formation of cliques or coalitions, exhibition of we-feeling, coordination, care of aircraft, cleanliness, and communication effectiveness. They are essentially global indices of interaction and/or its results.

References

Variables of this class were used in a total of 45 studies in the sample, were related to 18 other variable classes, in a total of 561 relationships, of which 193 (34%) were significant. Reference numbers of studies are: 40, 144, 169, 171, 182, 424, 450, 462, 512, 663, 689, 696, 715, 777, 790, 806, 811, 862, 867, 868, 887, 904, 972, 1055, 1128, 1150a, 1195, 1227, 1244, 1382, 1390, 1450, 1557, 1564, 1598, 1607, 1641, 1684, 1781, 1930, 1939, 1945, 1971, 1998, 2076.

Relationships with Other Variable Classes

01. Personality measures. Slightly related (6/36)

For example, measures such as maturity, emotional stability, tended not to be related to group competitiveness, adaptability, etc.

12. Member task abilities. Somewhat related (32/108)

The higher members were rated by others on power, the more they were observed as influencing others directly and indirectly, as receiving deferent behavior from others, etc. (27/44). However, confidence in own

abilities was not related to active vs. passive discussion role. Nor were objective measures of supervisory ability related to observed carefulness (1/8). Perceptions of other member's task skills tended not to be related to group discussion morale, cooperativeness, cohesiveness (2/11); and perceived crew member proficiency tended not to be related to air crew coordination (0/30).

13. Group abilities. Highly related (11/11)

Air crews rated high on overall value to their squadron, were rated high on working with other crews, handling aircraft, military bearing, etc. (5/5). Air crews rated high on degree of consideration shown among members were also rated high on military bearing, handling their aircraft, working with other crews, etc. (6/6).

21. Attraction to members and the group. Not related (0/34)

Such measures as crew coordination, attrition from the group, were not related to personal attraction among members.

23. Attitudes toward the situation. Moderately related (7/12)

Groups whose members perceived consensus of group opinion were judged to be more orderly (3/4); no other systematic pattern was identified.

25. Attitudes toward issues, concepts, ideologies. Somewhat related (15/66)

Authoritarians seemed to exhibit less intelligent discussion behavior (5/8) although such attitudes were not related to adaptability, sensitivity and social abilities shown during discussions (2/14). Authoritarian attitudes were not related to observed discussion behavior measures such as equal participation, friendliness, clique formation, group motivation, competence, communication effectiveness (6/34).

31. Social position in the group. Moderately related (2/4)

Those with high assigned importance attempted to lead others more often (2/2).

41. Group structure and composition. Moderately related (21/41)

Members with equal power were more likely to form coalitions; members with lower power were more likely to initiate coalitions; and members with high power relative to another were more likely to be involved in coalitions with disproportionate distribution of rewards (10/18). Groups homogeneous in authoritarian attitudes were rated as more

productive and communicating better than less homogeneous groups after a period of experience (2/2). Results for ratings of competence and definiteness of leadership were less clear-cut (3/6). There was only a slight relationship for member competency, sensitivity in discussion, etc. (2/8). In a frustrating situation, organized groups showed more we-feeling, frustration and mutual encouragement than unorganized groups (4/6).

42. Training and experience. Not related (3/30)

43. Induced social conditions. Somewhat related (18/59)

Cooperative groups were rated as more coordinated, orderly, and having fewer communication difficulties than competitive groups (8/8) and worked together more and were more attentive (5/8). Groups working under no threat conditions were rated higher on efficiency and adaptability than threatened groups (2/2), although such differences did not occur for other sources and targets of threat (0/4). In other settings, perceived threat was not related to such measures as group goal orientation, conflict, cohesiveness (0/21). Other results did not show a clear-cut pattern.

45. Task/stimulus characteristics. Moderately related (19/45)

Those exposed to a frustrating situation showed more cooperation and less conflict if they were strong friends (6/6), while both weak and strong friends showed negative and destructive behavior under frustration (10/10). There was no relationship between different types of play situation and various types of play behavior (social, social parallel, emotionality, etc.) (0/15). Degree of voluntariness of participation in a discussion was not related to subsequent volunteering behavior (0/4).

46. Induced task conditions. Moderately related (5/10)

Members operating under high motivation conditions exhibited higher motivation (3/3). In another setting, requirements to reach a decision about volunteering, or the publicness of that decision, were not related to member volunteering or other positive responses (1/5).

47. Feedback and reinforcement. Not related (2/19)

For example, praise or criticism of Air Force instructor was not related to crew orderliness, similar observed group characteristics.

61. Reactions to the situation. Highly related (28/30) within variable class.

There was high reliability for measures of direct or indirect influence, a high relationship between degree of consensus in arriving at a decision about volunteering and the number of volunteering or positive responses (6/6). There were also high interrelations for measures of air crew ability to work with other crews, with superiors, care of aircraft, etc. (22/24)

71. Leadership performance. Highly related (5/5)

Crew leaders rated high on combat performance by superiors, had crews rated high on work relationships with other crews, care of aircraft, military bearing of crew, etc.

72. Member task performance in experimental settings. Somewhat related (4/12)

There was a positive relationship between degree of disclosure of personal identity and yielding to group judgment (2/3). In another setting, members shifted more toward a correct majority opinion than toward an incorrect one, and showed more opinion shift when initial opinions were split than when they were either unanimously correct or incorrect (2/2). In a third setting, there was no relationship between positiveness of group leader behavior and quality of group member's speech behavior (0/6).

74. Member task performance in operational settings: specific measures. Not related (1/14)

For example, factory production was not related to absenteeism.

77. Group task performance in operational settings: specific measures. Moderately related (14/25)

For example, crew performance in training and in combat tended to be related to crew performance in discussion task on use of manpower on such measures as effective coordination, control, flexibility, etc.

62. Perceptions of Task Behavior and Effectiveness

Definition

This variable class deals with member perceptions of own and other members' task related behavior and task effectiveness. It includes indices such as adequacy of group performance, perceived group task progress, quality of product, general job behavior, lack of control, enforcement of rules, group morale, consideration shown to others, etc. Ratings of own task behavior such as own influence, difficulty in communicating with others, own structuring and organizing activities, consideration of others, coherence of own arguments, etc., are also included.

References

Variables of this class were used in a total of 70 studies in the sample, were related to 10 other variable classes, in a total of 490 relationships, of which 155 (32%) were significant. Reference numbers of studies are: 53, 144, 171, 189, 201, 272, 309, 398, 404, 417, 433, 438, 439, 473, 512, 526, 566, 693, 695, 697, 806, 811, 813, 837, 862, 867, 877, 904, 909, 941, 944, 950, 979, 1005, 1055, 1128, 1139, 1150a, 1195, 1236, 1244, 1325, 1356, 1382, 1451, 1468, 1523, 1528, 1552, 1557, 1564, 1603, 1607, 1716, 1755, 1756, 1760, 1780, 1787, 1810, 1919, 1926, 1945, 1976, 2046, 2058, 2091, 2101, 2104, 2108.

Relationships with Other Variable Classes

02. Biographical characteristics. Not related (0/8)

For example, sex was not related to perceived similarity of own answers to others, or to working hard.

31. Social position in the group. Moderately related (10/19)

The higher the member's salary and position in the group, the more perceived authority he felt he had and the more he delegated responsibility (4/6). Position in group as confederate or naive member tended not to be related to perception of performance effectiveness of others (2/8). The higher the rank of an air crew member, the higher he rated air crew performance adequacy (4/5).

41. Group structure and composition. Somewhat related (32/94)

Members of heterogeneous groups more often saw others as more qualified than themselves (2/3). In another setting, dyads using projection as a common defense more often saw their partners as less successful (2/3) and saw their groups as performing more poorly (3/4) than dyads with dissimilar defenses or with other defenses in common. In another study, the smaller the group (ranging from 2 to 4 members) the more effective members saw them as performing (4/4). Leaders of groups larger than 30 were more often rated as coordinating activities, giving clear rules to members, having greater achievement effort, physical courage, and wise delegation of authority (7/26). Members of groups smaller than 30 more frequently indicated "don't know" or "inapplicable" to a whole series of items about the leader (10/26), while there were no consistent differences between large and small groups on behavior "occasionally exhibited" by leaders (2/26).

42. Training and experience. Somewhat related (8/44)

One set of results, while unclear, suggests that members of groups in a success condition saw their groups as performing better than members of failure groups as the task series progressed (5/10). In other settings, measures such as (pre-experimental) flying experience tended not to be related to perceptions of leader supervisory behavior, to crew agreements on ratings of other members (2/29). Also, leaders trained in human relations techniques were not rated any higher by their subordinates on human relations behavior than those not receiving such training. (1/5).

43. Induced social conditions. Somewhat related (12/45)

Groups anticipating membership changes and working under cooperative sets rated other members' performance high (4/4), while perceptions of own task behavior were not related to knowledge of membership changes, etc. (0/4). Those working under cooperative rather than competitive sets saw more group cooperation, assistance from others, etc. (4/6). Those perceiving congeniality with co-workers

estimated co-workers' performance to be good (3/4). In other settings, however, source, amount and target of threat were not related to member judgments of such measures as group goal orientation, conflict, cohesiveness (1/27).

46. Induced task conditions. Slightly related (12/65)

Members of groups operating under perceived success saw their groups more as a vehicle to goal attainment than did members of failure groups (3/3). In another setting, members operating under success conditions did not rate other members' performances high compared to groups in a failure condition (0/4). In still another setting, results suggested that perceived success was associated with higher ratings of group performance effectiveness than a failure condition (15/51). In another study, members allowed some autonomy of decision were more satisfied with their superior's job performance (3/4) than were those in a hierarchal decision-making situation (1/3).

62. Perceptions of task behavior and effectiveness. Highly related (27/40) within variable class

There was high reliability of judgment of leader supervisory behavior, crew member judgments of air crew task activities, etc.

72. Member task performance in experimental settings. Moderately related (18/29)

The higher the rating of own performance the higher the actual performance (3/3). However, there was a less clear pattern for relationships between estimates of own performance and yielding to an incorrect majority (5/8) and between level of aspiration and actual performance (10/18), although the latter tended to be related early and late in the task series but not in intermediate stages.

76. Group task performance in operational settings: global measures. Moderately related (16/36)

Air crew member agreement on certain task procedures was positively associated with crew proficiency ranking but this did not hold with respect to other procedures (10/21). Perceptions of own task performance were consistently related to group performance measures such as forest effectiveness (3/3). However, perceptions of performance effectiveness of other members were not related to effectiveness of air crew and forestry management groups (3/12).

77. Group task performance in operational settings: specific measures. Slightly related (20/110)

Member ratings of leaders on ability to make judgments, to organize and enforce safety rules, general organizing ability, maintenance of adequate communication channels, conference practice and behavior consistency, were positively related to group performance on air crew tasks and factory production tasks. However, other similar measures did not relate to group performance (11/29). Furthermore, reports of own work procedures were not related to group production work time (1/13) and perceptions of other member's performance were not related to performance on military tasks (1/48) and were only slightly related to work group productivity in industrial tasks (7/20).

63. Perceptions of Social Behavior and Effectiveness

Definition

This variable class is parallel to # 62, except that it includes perceptions of social, rather than task, behavior and effectiveness. It consists of such indices as perceived agreement or disagreement with others, aggression and dominance exhibited, avoidance of job unpleasantness, others' efforts to impress, leaders' personal familiarity with subordinates, human relations behavior, and pleasantness.

References

Variables of this class were used in a total of 32 studies in the sample, were related to 10 other variable classes, in a total of 132 relationships, of which 44 (33%) were significant. Reference numbers of studies are: 11, 53, 242, 404, 417, 439, 512, 593, 608, 663, 693, 806, 811, 813, 837, 941, 984, 1128, 1195, 1236, 1356, 1420, 1552, 1567, 1639, 1756, 1760, 1810, 1914, 1961, 2004, 2108.

Relationships with Other Variable Classes

11. Member general abilities. Moderately related (2/4)

Impulsively behaving members were rated by peers as being more independent from adults but not different in amount of group power they held compared to less impulsive persons.

31. Social position in the group. Moderately related (20/32)

The higher a member's status in an air crew, the more he reports attempting to influence others (5/5). The higher a member's rank in the group the more others indicated they worked with him (10/16). However, perception of social behavior of other members was only slightly related to social position in the group (2/8).

41. Group structure and composition. Highly related (3/4)

Organized groups exhibited more fear in a threatening situation than unorganized groups (1/1), and members of dyads who were similar in using projection as a defense attempted to influence each other more than members of other groups (2/2).

43. Induced social conditions. Not related (1/7)

For example, degree of threat was not related to reports of own aggressive behavior.

44. Influence and conformity pressures. Not related (1/6)

Perceptions of own social behavior, such as attempted influence, are not related to group pressure (1/4).

45. Task/stimulus characteristics. Highly related (4/4)

There were more reported transmissions of rumors in an ambiguous situation than in a clearly defined situation.

72. Member task performance in experimental settings. Highly related (3/3).

The greater the degree of own perceived influence and disagreement with others, the more the change toward the majority opinion and the greater the actual number of times in disagreement with the majority.

73. Member task performance in operational settings: global measures. Not related (2/23)

For example, supervisor's perception of own independence was not related to his overall performance (2/10). Nor were subordinate ratings of leader human relations behavior related to technical competence of military officers (0/13).

76. Group task performance in operational settings: global measures. Not related (1/18)

For example, military group members' attitudes and behavior toward group problems were not related to their task performance.

77. Group task performance in operational settings: specific measures. Slightly related (7/31)

There was no clear-cut pattern of results.

71. Leadership Performance

Definition

This variable class includes observer or superior ratings of such characteristics as permissiveness, leader job performance, administrative ability, and combat performance. In some instances, this variable class derives from experimental settings, in others, from operational settings.

References

Variables of this class were used in a total of 15 studies in the sample, were related to 10 other variable classes, in a total of 275 relationships, of which 128 (46%) were significant. Reference numbers of studies are: 96, 103, 125, 128, 132, 133, 136, 254, 361, 362, 462, 728, 887, 1333, 1979.

Relationships with Other Variable Classes

01. Personality measures. Moderately related (12/24)

Leaderless group discussion performance was positively related to ratings on personality traits such as extroversion, assertiveness, social maturity, etc. (10/14). However, other traits such as seriousness, general activity, tended not to be related to leaderless group discussion performance (2/10).

02. Biographical characteristics. Somewhat related (8/23)

Those with higher education had higher leaderless group discussion scores (6/6), although age and leadership in leaderless group discussions were not related (0/9) and biographical characteristics tended not to be related to leadership in operational settings (2/8).

11. Member general abilities. Highly related (30/50)

Group members with high general intelligence exhibited high emergent leader behavior in leaderless group discussions (6/7). Peer ratings of a number of abilities were related to leaderless group discussion behavior, but a number of other similar abilities were not (16/26). In an operational setting, the higher a leader's problem-solving ability and word fluency the higher he was rated on leadership abilities by supervisors; however, this held for some departments but not others (8/17).

12. Member task abilities. Moderately related (23/47)

Leadership nominations by friends were related to observed measures of leadership behavior (5/7). There was a generally positive relationship between ratings of supervisory or leadership potential and performance in leaderless group discussions (11/18), but the relationship was much less consistent when examined in an Army setting (6/15).

31. Social position in the group. Highly related (6/6)

Those with higher group rank exhibited more leadership behavior in leaderless group discussions.

32. Task/physical position in the group. Not related (3/23)

For example, leaderless group discussion behavior was not related to seating positions in the group.

42. Training and experience. Slightly related (4/18)

Leaders with training in leader techniques were rated higher on permissiveness, frankness, regulating discussion participation, and effectively resolving conflicts than leaders without such training. However, trained and untrained leaders did not differ on several other similar measures.

51. Content of interaction. Moderately related (8/15)

Emergent leaders were higher on problem proposing, information seeking, and ego involvement, and lower on development giving than other members (4/4). They were not different from others on goal setting, information giving, opposing, supporting, etc. (0/7).

61. Reactions to the situation. Highly related (5/5)

Crew leaders rated high on combat performance by superiors had crews rated high on work relationships with other crews, care of aircraft, military bearing, etc.

71. Leadership performance. Moderately related (29/64) within variable class

Measures of leaderless group discussion performance were highly reliable (12/12). Measures of leadership performance were more highly interrelated in four man groups (9/14) than in two man groups (7/17). However, measures of leaderless group discussion performance were not related to supervisory ratings in an operational setting (1/21).

72. Member Task Performance in Experimental Settings

Definition

This variable class includes experimenter or observer ratings of individual performance on motor, symbolic and symbolic/motor tasks within experimental settings; e. g., number copying speed, arithmetic accuracy, accuracy of judgments of line length, quantity or speed of production, maze accuracy, speed, errors, etc.

References

Variables of this class were used in a total of 45 studies in the sample, were related to 21 other variable classes, in a total of 473 relationships, of which 214 (45%) were significant. Reference numbers of studies are: 1, 53, 101, 111, 122, 314, 351, 361, 428, 429, 430, 512, 642, 715, 755, 757, 793, 807, 862, 904, 909, 1033, 1046, 1086, 1098, 1099, 1139, 1236, 1242, 1266, 1390, 1401, 1450, 1451, 1456, 1486, 1585, 1602, 1760, 1761, 1926, 1930, 1934, 1963, 1979.

Relationships with Other Variable Classes

01. Personality measures. Slightly related (2/14)

There was no clear-cut pattern of results.

02. Biographical characteristics. Slightly related (13/51)

In one study, men performed consistently better than women (9/10). Other results do not provide a clear-cut pattern.

11. Member general abilities. Highly related (28/46)

The higher the members' school grades and intelligence, the better they performed on maze learning tasks (15/15). Intelligence was highly and positively related to performance on two types of intellectual problems, especially for older members (11/16). However, there was little association between intelligence and skill on perceptual tasks such as estimating number of objects (0/4). Human relations role playing performance was related to athletic ability (2/4).

12. Member task abilities. Highly related (4/5)

Overall grades in Air Force ground school were positively related to grades on a specific written examination.

23. Attitudes toward the situation. Slightly related (2/8)

Problem-solving performance tends not to be related to variables such as attitudes toward problem-solving.

25. Attitudes toward issues, concepts, ideologies. Highly related (4/6)

Members with low authoritarian attitudes performed better on a maze task.

32. Task/physical position in the group. Not related (0/13)

Performance measures such as symbol identification were not related to centralness in the communication net.

41. Group structure and composition. Somewhat related (27/68)

Statistically derived measures of "group" judgment were more accurate than "individual" judgments, especially for unfamiliar materials (3/3). Working alone or in the presence of others did not affect motor performance (2/11). Arithmetic performance did not differ for individuals working alone and in groups, but there were significant differences due to age, sex and race of members, in an unclear pattern (15/27). Performance did not differ for various communication nets except that Y nets were better than circle nets (4/4).

42. Training and experience. Highly related (33/46)

Members exposed to direct training had higher performance ratings than those trained by a more passive method (3/3). In another setting, there was little performance improvement with experience (1/4). However, the greater the training on maze, switch adjustment or similar motor tasks, or the later the period of testing, the better the performance (28/35).

43. Induced social conditions. Not related (3/31)

Members of democratically led groups made more correct responses and fewer errors early in performance on a maze task than did members of authoritarian led groups, but did not differ in performance later in the task series (3/7). In other settings, conditions such as cooperation/competition did not make for differences in performance; knowledge of audience did not aid recall, etc. (0/24).

44. Influence and conformity pressures. Highly related (2/2)

Those working under continuous influence pressures showed more conformity than those working under no pressures.

45. Task/stimulus characteristics. Moderately related (15/28)

Group problem-solving was more effective if preceded by a discussion (2/4). In another setting, the greater the clarity of the stimulus the more accurate and less variable were member judgments (6/6). In another setting, however, there was no clear relationship between accuracy and differences in materials (e. g., familiar vs. unfamiliar, social science vs. natural science, etc.) (7/17)

46. Induced task conditions. Moderately related (3/5)

Problem-solving performance was more effective if groups were required to reach a decision than if they were not (1/2).

47. Feedback and reinforcement. Moderately related (5/12)

Members working under positive reinforcement made fewer yielding errors than members working under negative reinforcement (2/2). In another setting, members performed better when feedback was their own error data (3/4) but in another study there was no difference in performance as a function of whether feedback was own or a combination of own and partner data (0/6).

51. Content of interaction. Moderately related (4/8)

There was no clear-cut pattern of results.

52. Pattern of interaction. Not related (0/5)

For example, various measures of speech quality, articulation, etc., were not related to rate of verbal participation.

61. Reactions to the situation. Somewhat related (4/12)

There was a positive relationship between degree of disclosure of personal identity and yielding to group judgment (2/3). In another setting, members shifted more toward a correct majority opinion than toward an incorrect one, and showed more opinion shift when initial opinions were split than when they were either unanimously correct or incorrect (2/2). In a third setting, there was no relationship between positiveness of group leader behavior and quality of group member's speech behavior (0/6).

62. Perceptions of task behavior and effectiveness. Moderately related (18/29)

The higher the rating of own performance the higher the actual performance (3/3). However, there was a less clear pattern for relationships between estimates of own performance and yielding to an incorrect majority (5/8) and between level of aspiration and actual performance (10/18), although the latter tended to be related early and late in the task series but not in intermediate stages.

63. Perceptions of social behavior and effectiveness. Highly related (3/3)

The greater the degree of own perceived influence and disagreement with others, the more the change toward the majority opinion and the greater the actual number of times in disagreement with the majority.

72. Member task performance in experimental settings. Moderately related (36/62) within variable class

Direct reliability measures of performance were highly significant for symbolic tasks (10/15), while performance on tasks such as maze learning was not related to the same performance measure at a later time (0/4). In other settings, the less the conformity toward an incorrect response the better the performance on a variety of tasks (12/18). There was a high relationship between accuracy of predicting a social event and accuracy of predicting various other general and specific measures (7/7).

75. Group task performance in experimental settings. Moderately related (8/19)

Group maze learning scores were highly related to individual member maze learning scores (6/7), but not to leader scores (0/5). In another setting, group and member scores were positively related when the entire group was rewarded for good performance (2/3) but not when just the leader was rewarded for good group performance (0/2).

73. Member Task Performance in Operational Settings: Global Measures

Definition

This variable class is similar to the previous one, except that it deals with data derived from operational settings and with global measures only, such as, ratings of combat performance, success on a strategy task, over-all job competence, ability to meet job demands, etc.

References

Variables of this class were used in a total of 9 studies in the sample, were related to 8 other variable classes, in a total of 183 relationships, of which 39 (21%) were significant. Reference numbers of studies are: 133, 184, 642, 678a, 811, 856, 1129, 1564, 2004.

Relationships with Other Variable Classes

01. Personality measures. Moderately related (4/8)

Better over-all personal ratings were associated with higher ratings of leadership in industrial work situations (3/3), but not in military field situations (1/5).

12. Member task abilities. Slightly related (17/74)

There was a highly positive relationship between an Army squad leader's knowledge of military problems and his rated performance on an actual field task (3/3), but little relationship between Air Force ground school grades and superior's ratings of combat performance (2/8). Perceived task skills tended not to be related to measures such as flight proficiency (12/63).

23. Attitudes toward the situation. Slightly related (4/16)

Members with feelings of well-being in the Air Force and a sense of safety in flying were rated higher by superiors on combat performance.

25. Attitudes toward issues, concepts, ideologies. Not related (1/12)

For example, authoritarian attitudes were not related to job performance.

31. Social position in the group. Slightly related (1/4)

For example, time spent in Army tended not to be related to member overall performance.

63. Perceptions of social behavior and effectiveness. Not related (2/23)

For example, supervisor's perception of own independence was not related to his over-all performance (2/10). Nor were subordinate ratings of leader human relations behavior related to technical competence of military officers (0/13).

73. Member task performance in operational settings: global measures. Slightly related (4/19) within variable class

Rated performance in training missions and schools was not related to performance in combat (3/16).

77. Group task performance in operational settings: specific measures. Slightly related (6/27)

For example, measures of group performance on simulated air crew tasks tended not to be related to ratings of crew member performance in combat.

74. Member Task Performance in Operational Settings: Specific Measures

Definition

This variable class is similar to the previous one, except that it includes specific rather than global measures, e.g., bombing accuracy, switch adjustment speed and accuracy, errors, correct responses, time to complete task, clerical costs, piecework rates, etc.

References

Variables of this class were used in a total of 8 studies in the sample, were related to 9 other variable classes, in a total of 115 relationships, of which 49 (43%) were significant. Reference numbers of studies are: 40, 201, 450, 1294, 1382, 1564, 1574, 1979.

Relationships with Other Variable Classes

02. Biographical characteristics. Not related (0/7)

11. Member general abilities. Moderately related (12/29)

Air Force officer role playing competence was positively related to member ratings of intelligence, energy, etc. (8/8), but not to other similar ratings such as adaptability, orderliness (10/12).

12. Member task abilities. Slightly related (2/8)

There was no clear-cut pattern of results.

25. Attitudes toward issues, concepts, ideologies.
Moderately related (3/5)

There was no clear-cut pattern of results.

31. Social position in the group. Not related (0/7)

41. Group structure and composition. Moderately related (16/26)

There was a negative relationship between group size (ranging from 10 to 50 members) and performance effectiveness in one situation (8/9) but not in a different situation (1/5).

46. Induced task conditions. Highly related (7/7)

Employees operating under general conditions of decision autonomy had better job performance than those working under a more hierarchal arrangement.

61. Reactions to the situation. Not related (1/14)

74. Member task performance in operational settings: specific measures. Highly related (8/9) within variable class

For example, measures of supervisor knowledge of the job, administration and human relations performance were highly interrelated.

75. Group Task Performance in Experimental Settings

Definition

This variable class includes experimenter or observer measures of quantity and quality or speed of group performance on experimental tasks requiring both motor and intellectual performances. Such measures as speed, errors and correct responses in maze performance, assembly tasks, verbal problem solving tasks, perceptual estimation tasks, puzzle tasks, etc., are included.

References

Variables of this class were used in a total of 32 studies in the sample, were related to 9 other variable classes, in a total of 255 relationships, of which 131 (51%) were significant. Reference numbers of studies are: 53, 111, 214, 314, 429, 430, 512, 576, 689, 789, 793, 874, 949, 968, 1058, 1086, 1122, 1139, 1243, 1466, 1468, 1586a, 1702, 1705, 1706, 1708, 1764, 1782, 1832, 1920, 1939, 2101.

Relationships with Other Variable Classes

41. Group structure and composition. Moderately related (25/62)

Those working alone performed better on a maze task than those working in groups (3/3). Similar results held for "extreme errors" in another situation (2/2) although there were generally no differences between individual and group performance (1/3). On symbolic tasks, those in groups performed better than those working alone, although less so on arithmetic and verbal problems (8/14). In another setting, there were some differences in performance among different types of communication nets (9/35), with circle nets being better than wheel nets on complex symbolic problems (5/5) but not different on simple problems (0/5).

42. Training and experience. Highly related (15/26)

Group performance improved over successive stages of practice in symbolic/motor tasks (8/8). On symbolic tasks, all groups showed learning and greater performance proficiency over time (4/4). Sequence of experimental conditions did not relate to performance (3/14).

43. Induced social conditions. Highly related (23/31)

Leaders instructed to behave in an authoritarian fashion had groups who performed better than non-authoritarian led groups (9/9). Cooperative groups performed more adequately than competitive groups (7/8). However, variations by a confederate in social reinforcement of others or in authoritarian-democratic behavior did not consistently relate to group performance effectiveness (4/11).

44. Influence and conformity pressures. Slightly related (4/15)

Groups exposed to a unanimous, incorrect majority erred in their performance in the direction of the majority more than groups not exposed to such pressures (3/3); the generality of this finding is shown by the absence of differences between several types of groups (0/9).

45. Task/stimulus characteristics. Moderately related (7/13)

The greater the discrepancy between the standard stimulus and the stimulus being judged, the greater the performance error (7/9). However, time and phase aspects of the task were not related to group performance (0/4).

46. Induced task conditions. Highly related (9/13)

Groups receiving confirmation of expected actions by the experimenter were better performers than those whose expectations about procedures were contradicted (5/6). A systematic distribution of information in communication nets rather than a random distribution among members, aided effectiveness especially for the comcom (each communicating to each) net (3/4). There was no such difference for degree of knowledge about the information distribution (0/2).

51. Content of interaction. Somewhat related (11/29)

There was no clear-cut pattern. Successfully performing groups seemed to exhibit less disagreement and hostility and more support among members than less successful groups. Also, more successful groups produced stories about hypothetical groups which contained satisfactory outcomes, orderliness, harmony, etc.

72. Member task performance in experimental settings.
Moderately related (8/19)

Group maze learning scores were highly related to individual member maze learning scores (6/7), but not to leader scores (0/5). In another setting, group and member scores were positively related when the entire group was rewarded for good performance (2/3), but not when just the leader was rewarded for good group performance (0/2).

75. Group task performance in experimental settings.
Moderately related (29/47) within variable class

Group performance on a model railroad task yielded a series of measures which did not show any clear pattern of inter-correlations; e.g., errors, correct responses, etc.

76. Group Task Performance in Operational
Settings: Global Measures

Definition

This variable class includes observer or superior ratings of over-all group performance on real or simulated military and industrial tasks.

References

Variables of this class were used in a total of 13 studies in the sample, were related to 10 other variable classes, in a total of 286 relationships, of which 103 (36%) were significant. Reference numbers of studies are: 83, 201, 433, 438, 766, 856, 867, 941, 972, 1128, 1209, 1603, 1939.

Relationships with Other Variable Classes

01. Personality measures. Slightly related (12/38)

The less members exhibited extreme personality characteristics, the more effective was their group performance (7/12). Members who rated themselves high on physical prowess and self-reliance, belonged to groups rated high on over-all military field problem effectiveness (5/8).

12. Member task abilities. Slightly related (4/21)

For example, satisfaction with leader tended not to be related to such measures as production rate, simulated air crew task performance, etc.

13. Group abilities. Slightly related (1/5)

Air crew problem-solving test performance was not associated with ratings of over-all training performance.

24. Attitudes toward supra-ordinate groups and other outside persons and groups. Somewhat related (3/8)

Army squad members who exhibited favorable attitudes and adjustment to the Army were members of squads rated high on over-all performance (3/4). There was little association of satisfaction with the Air Force or with an industrial organization and ratings of crew or group performance (0/4).

42. Training and experience. Highly related (9/11)

Length of time in job was related to group effectiveness (4/5). Crews with more flying experience were rated by supervisors as being more proficient (5/6).

47. Feedback and reinforcement. Somewhat related (2/6)

The more personal criticism instructors gave crews about performance, and the more they praised their crews, the better was the group performance (2/2), although frequency of explanations, illustrations, etc., did not effect crew performance (0/4).

51. Content of interaction. Somewhat related (32/106)

Crews rated as more effective in combat produced stories about hypothetical groups which contained more perceptions of satisfactory outcomes, orderly functioning, friendship, productivity, agreement, etc.

62. Perceptions of task behavior and effectiveness. Moderately related (16/36)

Air crew members' agreement on certain task procedures was positively associated with crew proficiency ranking, but this did not hold with respect to other procedures (10/21). Perceptions of own task performance were consistently related to group performance measures, such as forest effectiveness (3/3). However, perceptions of performance effectiveness of other members were not related to effectiveness of air crew and forestry management groups (3/12).

63. Perceptions of social behavior and effectiveness. Not related (1/18)

For example, military group members' attitudes and behavior toward group problems were not related to their task performance.

77. Group task performance in operational settings: specific measures. Moderately related (23/37)

The more effective air crews were on simulated air tasks, the higher they were rated by superiors on global measures of performance effectiveness in combat and training.

77. Group Task Performance in Operational Settings: Specific Measures

Definition

This variable class is similar to number 76, except that it includes specific performance measures rather than ratings of over-all performance. For the most part, these are observer's or superior's formal records of "scores" of group performances on specific criteria such as speed, accuracy, and production levels, e.g., bombing, gunnery and navigational accuracy on real or simulated military missions, clerical or surveying accuracy, time to hit target or to produce a given quantity of a product, etc.

References

Variables of this class were used in a total of 29 studies in the sample, were related to 22 other variable classes, in a total of 987 relationships, of which 230 (23%) were significant. Reference numbers of studies are: 184, 411, 438, 439, 450, 484, 606, 608, 642, 678a, 758, 767, 806, 887, 919, 941, 979, 1055, 1294, 1564, 1567, 1572, 1575, 1781, 1939, 1940, 1999, 2000, 2058.

Relationships with Other Variable Classes

01. Personality measures. Somewhat related (3/7)

Supervisors rated high in interviews on traits such as reasonableness and democratic behavior had high producing work sections (3/3), but no such results held for ratings of other similar characteristics (0/4).

02. Biographical characteristics. Not related (0/7)

Measures such as age, education, were not related to performance of industrial work groups or military squads.

11. Member general abilities. Not related (1/10)

For example, member intelligence tended not to be related to group performance on air crew tasks and Army field problems.

12. Member task abilities. Not related (31/410)

For example, measures of production line productivity, performance on simulated air crew tasks, tended not to be related to member judgments of competence and confidence in superiors (7/37). Moreover, such objective measures of task ability as ground school grades tended not to be related to measures of performance on simulated air crew tasks (24/373).

13. Group abilities. Moderately related (8/14)

The higher air crews were rated on over-all value to their squadron (by superiors), the greater the number of missions they completed, and the greater their performance effectiveness on a series of simulated air crew tasks (7/8). However, perceptions of task related abilities of groups were not related to group performance on aircraft manufacturing tasks, surveying tasks, etc. (1/6).

21. Attraction to members and the group. Somewhat related (10/34)

Groups working on a factory production task who were more personally attracted to one another performed more effectively (4/4), but this did not hold for members of military task groups (3/19) nor was group attraction related to clerical or manufacturing productivity (2/9).

22. Attitudes toward the task. Not related (1/22)

23. Attitudes toward the situation. Slightly related (1/6)

Such measures as perceived social distance between self and subordinate tended not to be related to production time.

24. Attitudes toward supra-ordinate groups and other outside persons and groups. Somewhat related (19/68)

The less similarity of traits which the leader attributed to a hypothetical most- and least-preferred co-worker, the more effective was team performance for basketball teams, surveying teams, air crews (on simulated air crew tasks), tank teams (on tank training problems). These variables interacted with sociometric patterns; namely, the relationship described above held only when the leader had positive sociometric relationships with others in the crew (9/12). In another study, attraction toward industrial company and the Navy were not related to

factory production work time, military task proficiency (1/10).

25. Attitudes toward issues, concepts, ideologies. Not related
(0/6)

For example, authoritarian attitudes were not related to drill proficiency, cleanness.

41. Group structure and composition. Moderately related
(25/39)

Small groups were more efficient than larger groups for groups ranging from 10 to 50 members (5/5). Unspecified differences among groups, such as air crew and training classes, as well as mission differences, were related to differences in group performance (20/34).

42. Training and experience. Moderately related (14/23)

Group performance improved over successive stages of practice (9/13). Crew aircraft flying experience was positively related to performance on simulated air crew tasks, but not on other tasks (5/10).

43. Induced social conditions. Not related (1/14)

Authoritarian vs. democratic leadership type was not related to performance on a simulated military task.

46. Induced task conditions. Highly related (5/7)

Groups with immediate access to relevant information performed better than those with difficult access to task related information (2/2). In another study, however, dispersion and directness of information availability was not as clearly related to group performance (2/4).

47. Feedback and reinforcement. Moderately related (10/17)

Different performance critique techniques produced some differences in performance of groups on later tasks. For example, expert critiques were better than unstructured crew-centered critiques and self-critiques, but were not better than structured methods (3/4). Self-critique procedures were less effective than expert critiques but were not different from any of the other methods (1/3). An unstructured technique was poorer than an expert or structured procedure but was not different from self and non-critique methods (2/4). Structured methods were better than unstructured ones, but no different than other procedures (1/4).

52. Pattern of interaction. Not related (0/4)

61. Reactions to the situation. Moderately related (14/25)

For example, crew performance in training and in combat tended to be related to crew performance in discussion task on use of manpower, for such measures as effective coordination, control flexibility, etc.

62. Perceptions of task behavior and effectiveness. Slightly related (20/110)

Member ratings of leaders on ability to make judgments, to organize and enforce safety rules, general organizing ability, maintenance of adequate communication channels, conference practice and behavior consistency, were positively related to group performance on air crew tasks and factory production tasks. However, other similar measures did not relate to group performance (11/29). Furthermore, reports of own work procedures were not related to group production work time (1/13) and perceptions of other members' performances were not related to performance on military tasks (1/48) and were only slightly related to work group productivity in industrial tasks (7/20).

63. Perceptions of social behavior and effectiveness. Slightly related (7/31)

There was no clear-cut pattern of results.

73. Member task performance in operational settings: global measures. Slightly related (6/27)

For example, measures of group performance on simulated air crew tasks tended not to be related to ratings of crew member performance in combat.

76. Group task performance in operational settings: global measures. Moderately related (23/37)

The more effective air crews were on simulated air tasks, the higher they were rated by superiors on global measures of performance effectiveness in combat and training.

77. Group task performance in operational settings: specific measures. Moderately related (31/69) within variable class

When direct reliability measures are considered, association was high (18/25). The remaining results showed little inter-relationship among a series of simulated air crew and tank crew tasks (13/43).

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